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IMPORTANCE OF INDUSTRIAL HYGIENE

HOW IT CAN BEST BE HANDLED THROUGH STATE DEPARTMENTS OF HEALTH

ALBERT S. GRAY, M.D.
Director, Bureau of Occupational Diseases, Connecticut State Department of Health
HARTFORD, CONN.

My discussion of industrial hygiene will be concerned principally with the effect of industrial environment on health. The effect of an unhealthful working environment was recognized by some of the fathers of medicine even before the beginning of the modern factory system. But the most impressive evidence of the effect of an unhealthful working environment is probably the morbidity and mortality statistics developed by Dublin in 1929 as the result of a study of three and a quarter million wage earners. Although his results have been presented before and are doubtless familiar to many, they show such a clear picture of the widespread effects of an industrial environment on the health of the worker that a few of the more significant conclusions are presented. Dublin's figures include a wide variety of industries, both those which are especially productive of occupational disease and also those which present no outstanding health hazard. The life expectancy of the industrial worker was shown to be seven years less than that of those otherwise engaged. Age for age, their mortality rates were from one and a half times to more than double the rates for the nonindustrial worker, and he concludes that while heredity and innate differences play some part, probably the most important factors are the conditions incident to industrial employment such as toxic gases, dusts, specific occupational disease, extreme temperature variations and numerous other industrial hazards.

Tuberculosis rates are much higher in the industrial group and add to the cases in the general population, and rates for pneumonia and degenerative diseases are much higher in the industrial group.

The numerous investigations of the United States Public Health Service and other health agencies, both here and abroad, have established that morbidity and mortality rates are definitely higher for the general industrial population and that certain occupations are of first importance as factors in the causation of excessive sickness and mortality rates; these excessive rates not only affect the industrial population but increase the rates of morbidity and mortality of the general population. Impressive as these statistics are, they do not tell the whole story, for frequently individuals working in an unhealthful environment on becoming affected leave their employment for some other work which does not affect their health. A high labor turnover may be the only indication found in some plants in which dangerous conditions exist but in which the incidence of occupational disease is reported as low.

In these days of modern production industry uses a vast array of materials and processes that will affect health if not properly controlled. New materials are constantly being added and their effect on health is frequently not known. Processes become well established and injury to health may occur as a result, for unfortunately the conditions predisposing to occupational disease in many cases are not immediately evident. Various agencies have done much splendid work in accident prevention in the last few years, but occupational diseases are not like accidents in which cause and effect may be clearly defined. They are not so attention compelling; their development is gradual and may appear only as increased labor turnover or decreased production. The effect on the individual is not so self evident and the cause of the condition is not so readily recognized.

There is nothing particularly arresting in the gradual loss of power in the hands of those absorbing lead; nothing to stimulate the interest, no startling appeal in the slowed gait and mental peculiarities of those exposed to certain solvents, in the development of anemia and tiny hemorrhages in those exposed to other poisonous materials, or in the gradual development of fibrosis of the lungs from exposure to certain dusts. The onset is gradual and the change imperceptible from day to day, until the individual either leaves to be replaced by another worker who passes through the same cycle or remains at work under progressively lessened efficiency until he can no longer work or becomes a compensable patient. If he leaves for employment elsewhere he continues at work at lowered efficiency for a greater or less time, dependent on how much of the material he has absorbed. The body is capable of wide adjustment to environment, and much harm may be done before evidence of the condition is noted.

The 1930 census shows that 15,000,000 people in this country are employed in manufacturing and mechanical industries and in the extraction of minerals. There are nearly a thousand occupations in these industries, the materials, processes or conditions of which are hazardous to health unless properly controlled. Aside from the effects on health, the economic implications are tremendous, for these conditions affect the earning capacity of a large part of the productive population.

Wesley M. Graff, director of conservation of the National Bureau of Casualty and Surety Underwriters, representing forty casualty companies writing annually

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$100,000,000 worth of compensation insurance, in a paper before the state and provincial health authorities at their last meeting, said:

> In the last few years occupational disease claims have grown at an alarming rate. They represent today one of the important problems of industry. . . . It is no exaggeration to say that the financial life of many of our most important industries is at stake and that it will be lost if measures are not taken to remedy the conditions causing occupational disease.

After citing the tremendous increase in insurance rates and amounts paid for compensation, he continued:

> The figures I have presented relate primarily to compensation costs. There are other, and perhaps greater costs with which you as health authorities are more familiar than am I. Those are the indirect losses which are the resultants of disease. They include the waste involved when life expectancy is shortened, with the cost to the state when morbidity and mortality rates increase due to inadequate preventive measures. The economic waste resulting from occupational disease may be greater in proportion than that accruing from the usual run of diseases, due to the fact that the wage earner is the one primarily disabled. Impairment of the wage earner's health may affect the general welfare and health of his family. I leave it to you to evaluate the costs to the state which are to be superimposed upon those for compensation which I have presented to you. From an economic point of view alone, the occupational disease problem is one of commanding importance.

Within the last few years, consciousness of the importance of maintaining a healthful industrial environment has developed among physicians, health authorities, insurance interests, labor and industry itself. Go through any of the recent volumes of THE JOURNAL or the programs of recent meetings and note the increased attention being given to occupational disease. The same is true of the journal and the programs of the annual meetings of the American Public Health Association, of the National Safety Council and of the technical societies such as the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers. The trade magazines of the various industries in which occupational disease conditions are found are carrying papers on these subjects in their journals. The literature on the subject is growing so rapidly that it is difficult to keep abreast of it. Recognition of the importance of occupational disease is becoming widespread, and the time has come to institute a constructive program for its control.

Control of conditions so seriously affecting such a large group of the productive population cannot properly be undertaken except by an agency experienced in disease control. The control of communicable disease has always been recognized as a function of the health department. This control is purely for prevention of disease and death.

Occupational disease control represents exactly the same close relationship to the health of the adult population as communicable disease control does to the health of the child population.

A complete program for occupational disease control cannot be undertaken by industry itself. While a few large corporations with laboratory facilities, technical personnel and full time medical directors have done some splendid work for those engaged in their specific plants, the vast majority of industry has not the facilities. Industry is not a health department; it is not to be expected that it assume the attributes of a health department. Industry conserves and increases the monetary assets of the state, health authorities and the medical profession its human assets. The state has a definite function to perform in the protection of the health of its people which it cannot abrogate or allocate to any other agency. Occupational disease control is a public health problem of the first magnitude requiring the cooperation of industry, the medical profession and the public health authorities for its solution.

In his presidential address at the meeting of the American Public Health Association, Haven Emerson said:

> We surround the babe unborn with premonitory protection, deal wisely and gently with infancy and childhood, and then hurl the product of a reasonably healthy youth into a maelstrom of blind chances of dusts, fumes and fatigues which wear down the stoutest body and cripple the most willing worker. . . . I would persuade you to seize and occupy the largest field of preventive medicine, until now excluded from the work of official health organizations in this country. I refer to the prevention of occupational diseases. . . . Let us have the courage to create a division, an office, a sphere of influence in every health department to be concerned with occupational disease. . . . Let us incorporate within the permanent functions of health departments protection of employed persons against health handicaps inherent in the place and nature of their work.

At the same meeting a resolution was passed that

> Unhealthful occupational environment constitutes an important and widespread cause of increased morbidity and mortality among the large group of wage earners and among the general population.
>
> *Resolved*, That it is a function of the department of health to include as an integral part of a complete public health program the protection of the population against health hazards resulting from unhealthful working environment . . . and recommends to each state health department of an industrial state the establishment of a bureau or division of occupational diseases or industrial hygiene under the supervision of a physician trained in public health and industrial hygiene, with adequate technical and laboratory facilities and personnel, empowered to make investigations of working environment, for the control of industrial health hazards and the prevention of occupational diseases.

At the meeting of the State and Provincial Health Authorities of North America a resolution was passed stressing the importance of unhealthful occupational environment and resolving to take action to start an occupational disease prevention program.

Wesley M. Graff, in his address before this meeting said:

> It is the health department which is concerned with mortality and morbidity rates, and, if faulty industrial conditions increase those rates, both for diseases not specifically occupational and also for the specific occupational diseases, such as silicosis, asbestosis, benzol poisoning, lead poisoning, etc., the power to prevent disease should rest with that department. It is our belief that within the department of health there should be a bureau or a division specifically charged with the prevention of occupational disease.

A controlling mechanism has been built for the prevention of communicable diseases by the use of instruments of precision and exact methods of control and employment of trained personnel—epidemiologist, sanitary engineer, bacteriologist—and necessary laboratory facilities and personnel.

This branch of medicine is now in a position to build a controlling mechanism for the prevention of occupational diseases. The prevention of occupational disease necessitates the application by specially trained technical personnel of precise physical and chemical procedures to conditions affecting health in industrial environment. It is impossible to tell by mere inspection whether any particular environment is safe, whether

the dust or other toxic material in the air of a workroom is present in sufficient quantities to constitute a hazard or whether the illumination is adequate or the ventilation sufficient.

The effect is known of many of the potentially hazardous materials and processes used by industry on health. For many of them the smallest amount (threshhold dose) that will affect health is known. Precise methods have been developed by which the exposure to these materials may be measured to determine whether this "threshold dose" is exceeded and a hazard to health presented. There are methods by which exposure to these materials can be controlled if exposure is found to be excessive.

The personnel of the health department organization for occupational disease control should be made up of men trained in the various phases of industrial hygiene. The director should be a physician possessed of a broad conception of all phases of the problem, trained in the recognition of occupational diseases, familiar with industrial processes and their effect on health, capable of interpreting the results of studies of working environment in terms of occupational disease control; the engineer, one trained in chemistry and ventilation, familiar with industrial processes, materials and job analysis, capable of making the necessary determinations of working environment to establish the extent of exposure to toxic materials and interpreting results of his determinations in terms of recommendations for control of conditions hazardous to health. Building from this nucleus, a well rounded bureau would include laboratory workers versed in the special procedures of dust counting and determination of the minute amount of poisonous materials to which workers may be exposed, and a secretary capable of acquiring an intelligent appreciation of industrial hygiene in general, to assist in maintaining a complete reference system so important in this work and, if possible, to make abstracts and translations of the most important papers. An industrial physician should be attached to the group to undertake activities to be outlined. With such personnel of technically trained men, who in the aggregate possess a broad knowledge of industrial hygiene, the bureau is in position to cope with the various phases of occupational disease control.

It is essential that adequate tools be placed in the hands of this personnel in the form of a well equipped laboratory and a well chosen library. The laboratory should include facilities for making both the chemical and the physical determinations incidental to learning the amount of injurious material to which the workers may be exposed. Our bureau has made a list of essential equipment and the approximate cost of such equipment, a limited number of copies of which are available to any one interested in developing such a laboratory. The library, of course, contains the standard works on industrial hygiene. The subject is, however, progressing so rapidly that it is necessary to follow the advances in the current journals containing papers on industrial hygiene and to accumulate a reprint collection of the outstanding papers. A reference card system is of course essential to make all this information easily available.

Whenever there is a full time plant physician, the bureau should work through him and make its report to him. When reports of cases are investigated, contacts should first be made with the private physician who reports the case. Information that will assist in diagnosis and in treatment should be made available to him. The industrial physician attached to the bureau has a large field of activity in connection with such investigation of cases in addition to handling the medical phases of requests for information and consultation on occupational disease subjects.

In Connecticut, in addition to receiving and investigating reports of occupational disease cases and providing a central source of information for physicians, industry or any agency interested in the cause, treatment and prevention of occupational diseases, the Bureau of Occupational Disease makes surveys and field studies of workroom environment, including special determinations of dusts, fumes and gases and other toxic materials, measurements of ventilation, illumination or any condition or process thought to be affecting the health of industrial employees, to determine whether the environment is safe or where and to what extent a health hazard may be present.

Each industry in which a study or survey is made receives a complete report of the study, including the results of actual physical and chemical determinations of the working environment and exposure of the individuals engaged in it, with recommendations for the elimination or control of any hazard that may be shown to exist.

The reports of these investigations are not just mailed to the industry but are presented by a technically trained man and discussed with the physicians and engineers of the organization. The information presented not only establishes the nature and extent of an existing hazard but provides constructive data for its control.

In any program for the control of occupational disease, the cooperation of the medical profession and of industry is essential. The reports of cases of occupational disease coming for treatment to the practicing physician provide an important factor in their control just as do such reports of communicable diseases in their control. A close cooperation with the practicing physician is essential if progress in the solution of the problem is to be made.

In order to obtain the cooperation of industry, it is necessary to provide it with definite data. The exact nature and extent of a potentially hazardous condition should be established as a basis for its control. This procedure is more intelligent and more effective than the use of arbitrary orders issued by law enforcing agencies and based on cursory inspection. Industry is penalized through compensation payments if its environment causes occupational disease. When industry is definitely shown that a health hazard exists, it has been my experience that it takes the necessary measures to control the condition as a matter of good business.

In Connecticut the law requires all physicians having knowledge of a case of occupational disease to report it to the state department of health. These reports are confidential and cannot be used in compensation or court cases. The department is empowered to make investigations of any condition reported to it or suspected of causing occupational disease, and the result of its investigation cannot be used in court or compensation cases.

The cost of development of a bureau or division of occupational disease in the health department need not be excessive. We began the Bureau of Occupational Disease with one physician trained in industrial hygiene and a secretary. The first thing done was to classify Connecticut industry and the potential hazards in them. After the first year we added an engineer, familiar

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with industrial processes and trained in industrial hygiene, who did field and laboratory work. A laboratory was established at this time. Three years later another engineer, concerned principally with the laboratory work, was added.

The activities conducted by our bureau have followed this outline. During the first year we had possibly a dozen or two inquiries regarding occupational diseases, industrial processes, the effects of materials and methods of protection. In the past year demand for consultation had grown to 463 requests for information relative to the effect of materials, methods of control of processes, diagnosis and the like, not including consultations in connection with field trips. In addition, thirty-two technical studies were conducted and 148 surveys made. These surveys covered twenty-four specific hazards found in seventy-one types of operations.

The work has resulted in definite improvement in working conditions, changes in processes, substitution of materials, and, in a number of instances, the purchase of entirely new equipment, not as the result of mandatory orders but because of the fact that these industries were given definite concrete information on the effects of the environment on health. Requests for this service from industry have been so numerous that we have had to schedule work months in advance.

SUMMARY

1. There are more than 15,000,000 persons gainfully employed in manufacturing, mechanical industries and extraction of minerals in the United States.

2. In these industries there are more than 900 occupations potentially hazardous to health.

3. The health of workers engaged in industry is affected by the conditions, materials and processes used. An unhealthful industrial environment not only causes specific occupational diseases but increases the incidence of tuberculosis, pneumonia and the degenerative diseases. These excessive rates not only affect the industrial population but increase the rates of morbidity and mortality in the general population.

4. The life expectancy of the industrial worker is seven years less than that of those otherwise employed.

5. Occupational disease costs are increasing and taking tremendous and unnecessary toll from workers and industry.

6. Occupational disease is preventable by correcting unhealthful industrial environment.

7. Occupational disease control is essential to protect this large industrial group from increased incidence of disease.

8. The protection of the health of those engaged in industry against injurious occupational environment is the responsibility of public health authorities.

9. The cooperation of industry and the medical profession is essential in any program of occupational disease control.

With a set-up such as I have described, in which the law provides that the results of investigations cannot be used in compensation claims, with a specially trained technical personnel to make determinations and interpret the conditions found in industrial environment, industry is provided with just the information it has a right to demand before it is required to change its processes, substitute materials or take other necessary control measures.

It is our experience that when industry is approached by a health agency in behalf of a health program and is presented with definite data regarding its working environment, in a spirit of service, with the assurance that the results of the investigations will not be used in furtherance of claims against it, industry not only accepts the service as a matter of good business but actually requests the assistance of such an organization in the improvement of its general working conditions.

8 Washington Street.

ABSTRACT OF DISCUSSION

Dr. C. O. Sappington, Chicago: The bureau that Dr. Gray directs in Connecticut is an outstanding example of organization and system in regard to the control of occupational diseases. An important consideration in the administration of such a bureau is that, when a state-managed bureau goes into this type of work, it is essential that the information be confidential and be not used in the adjudication of cases before either commissions or courts, because if that should be done, one can immediately see what confusion would result. Another important thing is the necessity for the training of professional personnel. There is a tremendous lack in that regard. There are some engineers available. There are also a few medical men available who are fairly conversant with this subject. This is a serious problem, and a means of working out the postgraduate training of engineers and practitioners is something of great moment. The economic situation is rather serious in that many states are considering compensation laws regarding occupational diseases, and it is necessary to give due consideration especially to including in those laws such principles as will permit them to be underwritten by insurance companies, thus providing the economic background for the carrying of this difficulty. Unless this can be done, a situation arises that is beyond control.

Dr. R. R. Sayers, Washington, D. C.: I should like to ask Dr. Gray whether he will tell how he finds out where hazards are. Various methods have been used at different times and I know that he has had good practical experience in finding where they are. I should like to have him call attention to how one can get doctors to report occupational diseases.

Dr. Albert S. Gray, Hartford, Conn.: One of the first things that the bureau did was to make a classification of Connecticut industries, and they fall into about a hundred classifications. We then classified the potential hazards that may occur in them and constructed a chart. We have cases reported to us and these are investigated. We know in what industries potential hazards exist. These are surveyed, and if necessary a study is made to determine whether the condition is safe. We have yet to go into an industry in which we knew that a potential hazard existed and where we were not welcome and haven't felt that we would be invited to go back again to give assistance in some other problem. Requests have been so numerous that we have had to schedule our work months in advance. Many industries in Connecticut never think of changing their processes or making any changes affecting hazardous materials without consulting us and calling on us for information relative to the proper method of doing it. I think it is largely due to the fact that they realize that we are not a punitive or a press agency but a service department, for, without at all abrogating our right as health officials to correct a condition in which we do find hazards to health, the work is conducted in a spirit of service rather than law enforcement alone. When industry is provided with definite information that a health hazard exists and what to do to control it, it becomes a matter of good business to take care of it, and mandatory orders are seldom necessary. We have been doing this work for five or six years, and labor, industry and the insurance interests are requesting the service to an extent greater than our capacity to provide it.

Dr. Huntington Williams, Baltimore: May I ask Dr. Gray if he would not say that his law, which makes the reports not available for subpena in litigation over compensation, is a fundamental part of his ability to do this work, and, if so, what steps he would suggest for bringing about that kind of change in the law in other states in which it isn't present?

DR. GRAY: I think it is fundamental. I feel quite sure that, if we went into a plant and they knew that if we found very bad conditions the results of our investigations or reports of cases could be subpenaed and used in compensation claims, we would have much more difficulty in securing their cooperation. The cooperation of industry is essential in eliminating industrial health hazards, and this can best be secured by conducting the work as I have outlined and not penalizing industry by making reports and results of investigations available for claims against industry. When industry realizes the results of our investigations, that the reports cannot be used by either party in compensation claims, they show us the very worst conditions of the plant. It is common experience for us to go into a plant to investigate some particular hazard and, after our report is made, to be requested to investigate other plant conditions. They realize that they are really being given a service of inestimable value by an agency that is absolutely unbiased. I want to say that we are not satisfied with reporting. I don't suppose any health officer is, whether it is a communicable or an occupational disease. There are a number of reasons why reporting is not satisfactory, but how much less satisfactory reporting would be if a doctor attached to a factory knew that any report he gave us could be used by a man coming before a compensation court! While reporting has improved considerably, there is much more work to be done on this phase of the problem. Close contact must be maintained with industrial physicians and reports of cases carefully investigated.

DR. JOHN SUNWALL, Ann Arbor, Mich.: How many of the the states have these departments?

DR. GRAY. About eight states are doing this work, but one or two of them have had to curtail their program during the depression. Michigan did have a department for this work, but I believe it has not been able to do much during the depression. There are at least five states in addition in which commissions or personnel have been appointed by their legislatures to investigate the problem of occupational diseases and the setup necessary for control.

DR. L. D. BRISTOL, New York: On the assumption that a number of industries throughout the United States have no particular problems from the standpoint of occupational diseases as such but are concerned largely with such things as the common cold and disorders of the upper respiratory tract in general, what does the State of Connecticut Department of Health through the Bureau of Industrial Hygiene do to assist the small industries with reference to some of the other important phases of industrial hygiene? I have in mind health education, medical examinations, periodic health examinations, and all those factors in an industrial health program that many small industries cannot cover. It seems to me that the state health department may have a very definite opportunity and responsibility in extending a program of health education and other services of an examination character to smaller industries. The large industries throughout the United States are able to set up their own individual services and personnel, as well as programs for carrying on work not only in the interests of preventing occupational disease but also in the interests of health education of employees.

DR. GRAY: The answer is that undoubtedly, while these suggestions are all desirable, we must concentrate on those that are most important. I am not sold on the idea of the state department of health doing physical examinations. That should be left to private physicians. I feel that any industry should be able to pay, when necessary, for a private physician to do physicial examinations. There is another factor, too: that a large industry, with plenty of money and doing splendid things for its personnel, is able to sell the idea of physical examinations to its workers; but in the smaller industry, as soon as one suggests physical examinations and reexaminations one is going to run into difficulties. It is difficult to sell the idea of physical examinations to labor in small industries, which are proverbially suspicious of the use that will be made of the results of the examination. Even supposing there could be a law that would not permit such records to be used outside the department of health, it would be extremely difficult to persuade labor that they are going to be used for placement and not for getting rid of some person who has some physical impairment. I acknowledge the desirability of the things the previous speaker mentioned, and I think that after some of the conditions I have mentioned have been cleared up, perhaps something more can be hoped for. The gentleman says that the important things are the colds and conditions incident to ordinary employment. This is not true in Connecticut. We have been overwhelmed with requests to take care of actual, definite hazards to health.

MALARIAL THERAPY IN RHEUMATOID ARTHRITIS

RUSSELL L. CECIL, M.D.
CONSTANCE FRIESS, M.D.
EDITH E. NICHOLLS, M.D.
AND
WARREN K. STRATMAN THOMAS, M.D.
NEW YORK

Malarial fever was first used therapeutically in 1917 by Wagner-Jauregg [1] in the treatment of dementia paralytica. This investigator had previously tried tuberculin and typhoid vaccine in the treatment of this disease and had obtained very good results with both these agents. By 1928 he had treated 2,000 dementia paralytica patients with malarial fever, as reported by his co-worker Gerstmann,[2] and in 1931 Wagner-Jauregg [3] summarized the results of malarial therapy in 3,000 cases of cerebrospinal syphilis that had been studied in the Vienna Psychiatric Clinic. Wagner-Jauregg was convinced that malarial therapy was much superior to other pyrogenic agents in the treatment of dementia paralytica, and this view is now quite widely held by neurologists.

In view of the excellent results that are often obtained in rheumatoid arthritis by the intravenous injection of typhoid vaccine, it occurred to us that arthritis, like dementia paralytica, might respond well to malarial therapy.

PRESENT STUDY

The present study is based on thirteen cases of rheumatoid arthritis that were treated by malarial therapy in the wards of the New York Hospital. It is well known that typhoid vaccine produces more striking and permanent results in early cases than it does in late cases of rheumatoid arthritis. It was our original intention therefore to make this a study of the effect of malarial therapy in early cases of rheumatoid arthritis. Much to our disappointment, however, we found it almost impossible to get this type of patient into the hospital for treatment. We finally had to be content with trying malarial therapy in chronic, well established cases. In the present study, twelve of the thirteen patients had been suffering from rheumatoid arthritis for two years or more at the time they received malarial treatment. One patient had had the disease for only four months.

It should be emphasized that all these patients had received various kinds of treatment before admission

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From the New York Hospital, the Department of Medicine of Cornell University Medical College, and the Laboratories of the International Health Division of the Rockefeller Foundation.

1. Wagner-Jauregg, Julius: Ueber die Einwirkung der Malaria auf die progressive Paralyse, Psychiat.-Neurol. Wchnschr. **20**: 132, 251, 1918-1919.

2. Gerstmann, J.: Die Malariabehandlung der progressiven Paralyse, Vienna, Julius Springer, 1928.

3. Wagner-Jauregg, Julius: Verhütung und Behandlung der progressiven Paralyse durch Impfmalaria, Handbuch der experimentellen Therapie, Serum und Chemotherapie (Erganzungsband), 1931, p. 183.

to the hospital. All had been subjected to tonsillectomy, most of them several years before admission. All had received various forms of physical therapy and vaccine therapy. Five of the patients had received typhoid vaccine intravenously with only temporary benefit. Two patients in the series (9 and 11) had been subjected to hyperthermia by diathermy, with only temporary relief.

All but two of the patients in the series had tried rest in bed for various periods of time (from two weeks to three months).

One of the patients gave a history of having had malaria in childhood, many years before arthritis developed.

The patients included in this study varied considerably in the severity and extent of their arthritis. In six cases the joint involvement was chiefly periarticular and characterized by swelling without appreciable ankylosis or deformity. In the remaining seven cases the disease gave evidence of having involved the joint structures as well. For example, there was more or less grating on movement and in some instances there were contraction deformities and partial ankylosis.

The general condition of the patients was excellent in six, fair in two and poor in five. Six patients showed no appreciable anemia, two had slight anemia, and five showed a definite though not advanced anemia. It was felt that patients with severe anemia should not be subjected to this form of treatment.

All but one of the patients studied were able to walk into the hospital. Patient 7 had to be carried in because of advanced changes and deformities in the knees and feet. Two other patients on admission had to assist themselves with crutches or canes.

METHODS

All the patients were put to bed immediately after admission to the hospital. After a complete physical examination, the following laboratory tests were made:

1. Urinalysis.
2. Renal function tests, consisting of the urea clearance, concentration and dilution tests.
3. Blood count, including the Schilling count.
4. Wassermann test.
5. Sedimentation rate of red blood cells by the Rourke and Ernstene method.
6. Agglutination tests with the patient's serum against Streptococcus haemolyticus.
7. Roentgenograms of the joints chiefly affected by arthritis.

Technic of Inoculation.—As it was undesirable to inoculate arthritic patients with blood from dementia paralytica patients who were receiving malarial therapy, all but one of the individuals included in this study were inoculated with benign tertian malaria by the application of anopheline mosquitoes infected with Plasmodium vivax. The strain of Plasmodium vivax employed was isolated in Florida in 1931, since which time it has experienced sixteen consecutive anopheline-human passages without any perceptible change in virulence. The clinical course of patients infected with this strain of Plasmodium vivax and the response of this strain to quinine are so well understood that no fatalities have occurred during its utilization. The anopheline mosquitoes were obtained from a self-perpetuating colony of Anopheles quadrimaculatus reared in an insectary in the laboratories of the International Health Division of the Rockefeller Foundation at the Rockefeller Institute. These insectary-bred anophelines were infected with benign tertian malaria by allowing them to feed on patients who were receiving malarial therapy and who exhibited the sexual forms of the plasmodia in their peripheral blood. After the mosquitoes had taken a blood meal they were incubated at 22 C. The sporogenous cycle of the plasmodia, as evidenced by the appearance of sporozoites in the salivary glands of the anophelines, was completed in from fourteen to sixteen days, after which time the mosquitoes were available for the inoculation of new patients.

For the inoculation of a patient a number of mosquitoes were put in separate cages and applied one by one to the patient's thigh, until four or five had taken a blood meal. The anophelines that had fed on the patient were then dissected and the salivary glands of these mosquitoes examined under the microscope for sporozoites, the presence of which was evidence that the patient had received the desired inoculum.

The remaining patient in this series (patient 13) received a quartan malarial infection by means of blood obtained from a patient with quartan malaria.

The patients were not confined rigidly to bed during the incubation period, which varied from ten to fifteen days. During the period of the paroxysms, however, they were confined to bed even on days when they were afebrile.

The number of paroxysms allowed to each patient varied from three to fifteen, the average being ten. In addition to the paroxysms, however, most of the patients experienced one or more preliminary febrile reactions from one to five days before the first typical paroxysm.

In three cases malarial therapy was temporarily interrupted by small doses of quinine because of the severity of the paroxysms, and in one of the thirteen patients (patient 5) malarial therapy was permanently interrupted by quinine after the third paroxysm because of unusually high fever and prostration.

After what was considered a sufficient period of malarial treatment, the infection was terminated by quinine therapy in doses of 10 grains (0.65 Gm.) of quinine sulphate orally three times a day. This was kept up for ten days and, in six cases, resulted in a prompt and permanent termination of the malaria. In eight cases, however, there was a recrudescence of the malarial infection several months after the quinine therapy had been completed. Additional treatment with quinine disposed of the recrudescence, which was never so severe as the original attack.

Patients were not allowed out of bed until at least two weeks after the last malarial paroxysm. Usually they were kept in bed for an even longer period. After they were allowed up, most of the patients had physical therapy and massage to hasten the return of their strength and general muscular tone. Reduced iron in doses of 0.5 Gm. three times a day was given to the patients during their convalescence from malaria.

RESULTS

1. *Results of Inoculation.*—With one exception all the patients developed malarial fever within ten to fifteen days after inoculation. The exception (patient 5) had to be inoculated a second time before the disease developed.

Most of the patients had a more or less typical tertian syndrome. In two cases, however (1 and 11), the course was quotidian. The patient who was inoculated with the quartan parasite had a typical quartan syndrome.

2. *Results of Malarial Therapy.*—The general effect of malarial therapy on the arthritic patient was just what might have been expected. The paroxysms were usually rather severe and caused the patient considerable discomfort and anxiety. During the malarial period all the patients lost weight and showed the usual secondary anemia. In every case, however, the loss in weight and red blood cells was regained during convalescence.

We had expected of course that the immediate effect of malarial fever on arthritic patients would be favorable. The results, however, were even more striking than had been anticipated. Most of the patients, after experiencing two or three paroxysms, were almost if not entirely relieved of pain and stiffness in the affected joints. Even more remarkable was the rapid disappearance of joint swelling and tenderness.

Summary of Arthritis Cases in Which Treatment with Malaria Was Given

Number	Duration	Degree	Paroxysms	Results		
				Immediate	After 3 Mos.	After 6 Mos.*
1	4 mos.	++	12	Excellent	Excellent	Excellent
2	2 yrs.	++	12	Excellent	Partial relapse	Improved
3	2 yrs.	++	10	Excellent	Complete relapse	No improvement
4	2 yrs.	++	12	Good	Complete relapse	No improvement
5	2 yrs.	+++	8	Fair	Complete relapse	No improvement
6	2 yrs.	++	6	Excellent	Partial relapse	Much improved
7	2 yrs.	+++	6	Fair	Complete relapse	No improvement
8	2 yrs.	+	7	Excellent	Partial relapse	No improvement
9	3 yrs.	+++	11	Excellent	Excellent	Complete relapse
10	4 yrs.	++	12	Good	Complete relapse	No improvement
11	5 yrs.	+++	15	Excellent	Complete relapse	No improvement
12	8 yrs.	+++	8	Good	Complete relapse	Improved
13	9 yrs.	+++	10	Fair	Improvement	Improved

* Compared with status before malarial therapy.

In the accompanying table the patients who received malarial therapy are listed, together with the duration and severity of their arthritis, the number of paroxysms each had and the results obtained. This table reveals that the immediate effect of malarial therapy was favorable in every case; that is, at the conclusion of the last paroxysm the condition of the joints was better than it had been before treatment was instituted. In seven cases the immediate effect was described as excellent, which meant that the joints were practically free from all pain and swelling. In three others the immediate effect was good, the patient being much more comfortable but not entirely free from symptoms. In the three remaining cases the immediate effect of the malarial treatment was only fairly favorable. The immediate effect appeared to have no relation to either the duration or the severity of the disease. The immediate effect of the treatment was not related directly to the number of paroxysms which the patient had. Indeed, in some cases the maximum benefit was obtained after three or four paroxysms and no further improvement occurred even though the patient continued to have eight or ten additional paroxysms.

Condition of Patients Three Months After Malarial Therapy.—Unfortunately the marked benefit achieved by most of the arthritic patients in this series was not of a permanent character. Within a month after completion of the malarial treatment, most of the patients noted a gradual return of joint symptoms. In the table the status of the thirteen patients three months after conclusion of malarial therapy is indicated. With three exceptions, all suffered a partial or complete relapse with respect to their arthritis within a comparatively short time after the malarial treatment. Patient 1, who experienced no relapse, had had arthritis for only four months when she received malaria. Patient 9, though she had had arthritis for three years, was free from all pain and discomfort three months after malarial therapy, though she relapsed later. A third case, in which the immediate improvement was only fair, showed considerable improvement at the end of three months. Three patients had a partial relapse, though their condition was better than before malarial treatment. Seven patients experienced a complete relapse, with their condition practically the same as that before malarial treatment.

Condition of Patients Six Months After Malarial Therapy.—Six months after conclusion of the malarial treatment, one of the three patients (patient 9) whose condition had been excellent at the end of three months had suffered complete relapse. The actual status of the thirteen patients at the end of six months was: no joint symptoms, one; improved, four; unimproved, eight. It should be added that all of the five patients who either recovered or improved received other forms of therapy during the six months period. Two went south for the winter; two others received streptococcus vaccine, but since they had previously had vaccine without benefit it is doubtful whether the vaccine was a factor in their improvement; the remaining patient received orthopedic treatment in the form of knee braces.

Studies on the Blood.—The bloods and serums of the patients included in this investigation were tested before, during and after malarial therapy by the following methods:

Blood Count: As already indicated, blood counts revealed secondary anemia in every patient subsequent to malarial treatment. Succeeding blood counts, following iron therapy, showed a rapid return of the red blood count and hemoglobin to its former level. The white blood count revealed a leukopenia, sometimes quite marked, during the malarial period.

The Schilling count showed an increase of immature cells during the malarial period, with a return to normal percentage shortly after termination of the infection.

Sedimentation Rate: All but patient 2 showed an acceleration of the sedimentation rate before malarial therapy was instituted. The rate was still further accelerated during the malarial period. Following the termination of the malaria there was a very gradual return of the sedimentation rate to its premalarial level, but in only six of the thirteen patients did the rate fall to a point lower than the premalarial rate. In the latter group the fall in rate was with one exception accompanied by clinical improvement in the patient's arthritic condition.

Agglutination Reactions: Eight of the thirteen patients gave strongly positive agglutination reactions with Streptococcus haemolyticus. Following malarial therapy these agglutinins disappeared entirely in six of the eight cases in which they had been present. In the remaining two cases the agglutination titer was considerably reduced. In no case did malarial treatment induce the appearance of agglutinins in the serum of a patient who had shown none previous to malarial therapy.

105
935

COMMENT

Many articles have been written on the use of foreign protein in rheumatoid arthritis. The consensus seems to be that in early cases, in which the symptoms are acute or subacute and the inflammation is mostly periarticular, foreign protein therapy often produces spectacular results, a considerable proportion of the patients making a complete and permanent recovery. In chronic well established cases the immediate effect of fever therapy may be quite striking, but a majority of the patients relapse within a few months after the treatment has been completed. This appears to be the case with malarial therapy. No doubt, if all the cases in the present series had been early ones, the percentage of permanent recoveries would have been higher.

Granted that some form of fever therapy is indicated in many cases of early infectious arthritis, is malarial therapy to be preferred to intravenous typhoid vaccine or to hyperthermia by mechanical measures? One would have to have a considerably larger experience with malarial therapy in arthritis before this question could receive an accurate answer. It is an uncomfortable and in some cases a drastic form of therapy, more enervating to the patients than either typhoid vaccine or hyperthermia. The immediate results have seemed to us more striking than those obtained by the two other methods, but the percentage of relapses is high in all three methods.

In this study we have not attempted to explain the mechanism by which swelling and pain disappear so promptly from the joints immediately after the first two or three paroxysms. It is a fairly safe assumption that the malarial paroxysm produces in the host a reaction quite similar to the febrile reaction that follows the intravenous injection of typhoid vaccine or other foreign proteins. Various theories have been advanced to explain the favorable effects of protein fever, none of them entirely satisfactory. For example, the rôle of the leukocytes has been stressed by some investigators, because of the leukocytosis that accompanies foreign protein reactions. In malarial therapy, however, there is a leukopenia, which is quite marked in some cases. It appears likely that more than one factor is at work in all forms of fever therapy.

SUMMARY

1. Thirteen patients with rheumatoid arthritis received malarial therapy. Twelve of these patients had the disease in a chronic well established form of from two to five years' duration. The remaining case was of four months' duration.

2. All thirteen of the patients received immediate benefit from the treatment. In a majority of cases the improvement was striking; practically all pain and swelling disappeared from the affected joints after three or four malarial paroxysms.

3. In the course of from four to six weeks after termination of malaria, all but two of the patients had more or less recrudescence of joint symptoms, and one of these two suffered a complete relapse later on. The one exceptional patient who did not relapse had had arthritis for only four months at the time malarial therapy was administered. This patient has remained well up to the present time.

4. Six months after termination of malarial therapy, the twelve patients whose joint symptoms returned still had rheumatoid arthritis, but in four of these their general health and the condition of their joints were distinctly better than they had been previous to the malarial treatment. In eight cases the arthritis relapsed completely to its original state.

5. Malarial therapy had no constant or noteworthy effect on the sedimentation rate of the red blood cells, but in most cases it lowered the titer of streptococcus agglutinins in the patient's serum.

33 East Sixty-First Street.

THE CONSERVATIVE OPERATION FOR "BUNIONS"

END RESULTS AND REFINEMENTS OF TECHNIC

EARL D. McBRIDE, M.D.
Assistant Professor of Orthopedic Surgery, Oklahoma University School of Medicine
OKLAHOMA CITY

The surgical treatment of hallux valgus or "bunions" carries with it an unusual responsibility. End results that appear excellent to the surgeon are often not satisfactory to the patient. The operative procedure, therefore, must be one that not only fulfils surgical requirements but will meet the patient's expectations as to a reasonable temporary disability, and a final functional improvement, including the cosmetic effect, the relief of soreness and the use of the feet.

Fig. 1.—Before operation: typical hypertrophy on the head of the metatarsal and displacement of the sesamoid bones.

The operation that I previously described[1] and termed "a conservative operation for bunions" has proved equal to these requirements, as has been shown in an analysis of thirty-nine consecutive cases, based on the records of cases and on answers to the following questionnaire:

1. Are your toes well corrected?
2. Do you have any pain?
3. How soon could you walk normally?
4. Is there any stiffness?
5. Do you feel that the result has justified the operation?
6. Can you rise on your toes and dance normally?

The results thus far obtained seem to confirm the advantages originally suggested; i. e.:

1. The deformity is corrected without resection of the joint or fracture of the metatarsal bone.
2. Normal architecture of the toes is approached.

Read before the Section on Orthopedic Surgery at the Eighty-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 14, 1935.

1. McBride, E. D.: A Conservative Operation for Bunion, J. Bone & Joint Surg. **10**: 735 (Oct.) 1928.

3. The mechanical force that causes the deformity is corrected.

4. The scar is located safely from irritation.

5. The period of temporary total disability is greatly lessened.

A sixth point may be added; i. e., the functional results permit early normal activity of the foot in popular shoes.

The principle of the operation is similar to a step advocated by Silver. The valgus position of the toe is

Fig. 2.—After operation: improved alinement.

corrected by releasing the adductor tension from the outer side of the base of the proximal phalanx, and the improvement is maintained by shortening the capsule formed by the abductor hallucis. From the clinical point of view such a plastic reconstruction is less hazardous than bone resections and eliminates much of the apprehension that has arisen regarding the surgical treatment of "bunions." From the standpoint of surgical mechanics a procedure of direct attack on the forces that produce the deformity is superior to indirect measures that alter the metatarsal shaft or head. There are no muscle insertions about the head of the first metatarsal bone. The structural conformation of this bone with its medial angulation of 25 degrees is of great static importance, but the dynamic resilience of the big toe action is provided through the muscles inserted in the phalangeal section. Independent of muscle action, therefore, except through indirect stress, the projecting metatarsal tongue absorbs a great portion of the body weight through its fixed base and provides a rotundity at its distal end whereby the weight can be buoyantly shifted to the more tactile and resilient phalangeal structures. The forward alinement of the phalanges with the metatarsal shaft is maintained through equilibrium of adductor and abductor forces, but, because of a number of factors, including those created by the fashions of civilization, the attitude of rotated adduction develops an advantage over abduction and through pressure, irritation, inflammation, atrophy and fibrosis, the confirmed state of hallux valgus becomes a fixed deformity.

Correction of the rotation and valgus can be maintained only by restoring equilibrium of the forces of tension laterally and medially as they apply to the phalangeal section of the toe. In this respect the proximal phalanx is a lever, and the head of the metatarsal a fulcrum of indispensable kinetic value. Excision of the metatarsal head is unavoidably incapacitating. Realinement of the metatarsal shaft by osteotomy not only adds the complexity of a fractured bone to the operation but is not, mechanically, the most effective mode of attack because the result depends on the restoration of the transverse axis of the fulcrum, on which a very short lever acts, from an oblique position to a horizontal one. Thorough release of the adductors, including the lateral head of the flexor hallucis brevis, directly loosens the tension that is producing not only the valgus but also the rotation, which usually is a disagreeable part of the deformity. The technic of the operation is as follows:

1. Careful preoperative preparation of the nails, toes and feet.

2. Local, spinal or general anesthesia.

3. Tincture of merthiolate or iodine preparation.

4. Tourniquet, of the Esmarch type.

5. Incision 2 inches in length, starting in the web between the first and second toes and extending along the external border of the extensor hallucis longus tendon so as to expose the lateral aspect of the metatarsophalangeal joint.

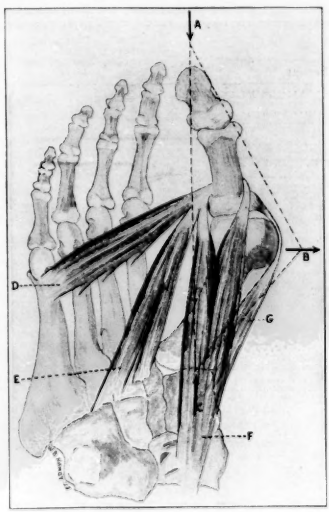

Fig. 3.—Insertion of the adductor, the abductor and the flexor brevis muscles in the base of the proximal phalanx. Arrows *A*, *B*, and *C* indicate the direction of forces that create the valgus deformity. *D* and *E* denote the adductor hallucis brevis with its two heads. *G* is the abductor hallucis. In the valgus position the adductors and lateral head of the flexor hallucis brevis produce a rotating force.

6. Severance of the adductor hallucis from its fascial attachment to the base of the proximal phalanx. In exposing this tendon one should keep close to the bone surface to avoid lateral vessels and nerves.

7. Removal of the external sesamoid. If excision of this bone is contraindicated, the lateral head of the

flexor hallucis brevis should be tenotomized. The sesamoid lies embedded in the adductor and the flexor hallucis brevis tendons and its removal is tedious. Care with a towel clamp or small hook (fig. 4) and pull it dorsally and upward, as dissection is made medially beneath it. The use of two laterally curved sharp

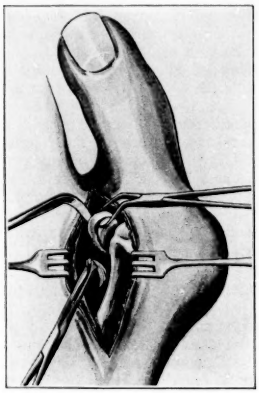

Fig. 4.—Technic of removal of the external sesamoid.

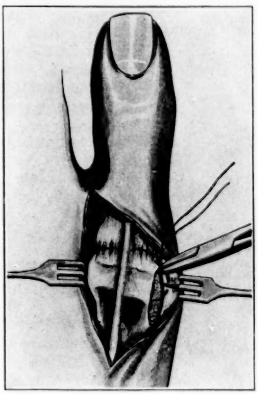

Fig. 5.—The hypertrophied portion of the metatarsal head has been excised and the bursa shortened sufficiently to maintain the toe in normal alinement.

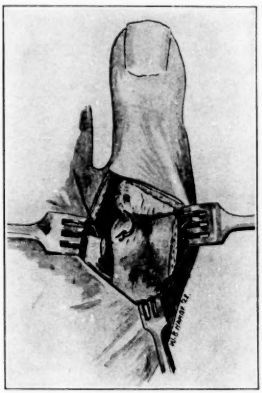

Fig. 6.—Transplanting the conjoined adductor tendon to the metatarsal head.

Analysis of Thirty-Nine Consecutive Cases

Patient	Age, Years	Time Since Operation, Years	Began Weight Bearing, Days	Complications	Reoperation	Patient's Expectations Satisfied: Pain Relieved	Cosmetic Effect	Motion and Function
Mrs. W. E. F.	42	2	15	Persistently tender bursa	No	Yes	Yes	Yes
Miss B. M.	35	5	12	None	No	Yes	Yes	Yes
Mrs. K. H. D.	27	6	10	Soreness persistent	External sesamoid removed later	Yes	Yes	Yes
Mrs. S. C.	45	7	14	Metatarsalgia	No	Yes	Yes	Yes
Mrs. E. E. R.	60	6	14	None	No	Yes	Yes	Yes
Mrs. E. F. G.	52	7	16	No	Yes	Yes	Yes	Yes
Mrs. J. T. H.	63	7	21	Poor circulation	No	Yes	Yes	Yes
Mrs. J. W. H.	48	7	11	None	No	Yes	Yes	Yes
Mrs. J. A. S.	63	6	14	None	No	Yes	Yes	Yes
Mrs. H. H. E.	30	5	..	None	No	Yes	Yes	Yes
Mrs. C. A. P.	24	5	17	Soreness persistent	External sesamoid removed later	Yes	Yes	Yes
Mrs. F. B.	60	2	21	None	No	Yes	Yes	Yes
Mrs. B. G.	70	6	21	Slow healing	No	Yes	Yes	Yes
Mrs. E. B.	43	6	23	Slow healing	No	Yes	Yes	Yes
Mrs. F. E. H.	71	5	28	Sloughing incision edges	No	Yes	Yes	Yes
Mrs. L. C. T.	43	7	8	None	No	Yes	Yes	Yes
Miss H.	24	6	9	None	No	Yes	Yes	Yes
Mrs. A. Mc.	61	3	16	None	No	Yes	Yes	Yes
Miss A. J. R.	18	5	17	Overcorrected	Relieved overcorrection	Yes	Yes	Yes
Mrs. C. T. A.	35	2	16	None	No	Yes	Yes	Yes
Mrs. L. F. S.	27	7	15	None	No	Yes	Yes	Yes
Mrs. A. A. Mc.	36	3	18	None	No	Yes	Yes	Yes
Mrs. J. B. N.	33	3	17	None	No	Yes	Yes	Yes
Miss B. S.	44	4	19	None	No	Yes	Yes	Yes
Mrs. C. B. H.	55	4	21	None	No	Yes	Yes	Yes
Mrs. I. F.	40	3	35	Sepsis	No	Yes	Yes	No
Miss A. H. J.	34	4	..	None	No	No information obtained		
Mrs. C. H. G.	44	2	21	Persistent sinus	Excised sear	Yes	Yes	No
Mrs. G. V. B.	46	4	16	None	No	Yes	Yes	Yes
Mrs. G. L. N.	62	6 mos.	24	Sloughing skin edges	No	Yes	Yes	Yes
Miss N. O.	38	2	12	Removed too much bone on one foot	Internal sesamoid removed	Yes	Yes	No
F. A.	16	1	22	Congenital absence of second toe	Osteotomy for relapse	Yes	Yes	Yes
Mrs. H. L. H.	52	1	18	None	No	Yes	Yes	Yes
Mrs. M. L. H.	25	1	16	None	No	Yes	Yes	Yes
Mrs. M. S. C.	70	7 mos.	18	Slow healing; circulatory	No	Yes	Yes	Yes
Mrs. E. F.	24	2	18	Overcorrection; flexion deformity of distal joint	Relieved overcorrection	No	Yes	Yes
Mrs. H. H.	46	5	21	None	No	Yes	Yes	Yes
Miss E. W.	23	7 mos.	14	None	No	Yes	Yes	Yes
Mrs. F. Mc.	42	5	28	None	No	Yes	Yes	Yes

should be used not to damage the flexor hallucis longus tendon. The operator should stand facing the sole of the foot and, after freeing the sesamoid at its distal and proximal edges with the ordinary scalpel, grasp it pointed dissectors made of right and left periosteal strippers is of great assistance (fig. 4). Narrow bladed curved scissors are also useful. When the sesamoid is removed, there remains a surprisingly large space which

permits the head of the first metatarsal to be squeezed tightly to the side of the second metatarsal. This is ample reward for the tedious work of removing the sesamoid, because:

(*a*) The flattened forefoot is pleasingly narrowed.
(*b*) The convexity to the anterior arch is improved.
(*c*) A troublesome source of soreness is removed.
(*d*) Relaxation of adductor contraction is complete.
(*e*) The force that rotates the toe is released.

8. The conjoined adductor tendon tissue is attached laterally to the first metatarsal by subperiosteal insertion and suture.

9. The incision is now retracted medially over the extensor hallucis tendon to expose the bursa. An incision is made along the dorsal border of the bursa and the thickened tissue is dissected thoroughly from the medial surface of the metatarsal head. The prominence of the head is removed vertically with a thin osteotome, caution being used to leave no rough edges or fragments of bone. The extent of bone excised should be gaged according to cosmetic requirements. The capsule of thick fibrous tissue is then sectioned and shortened sufficiently to maintain slight overcorrection of the toe.

The wound must be dry before it is closed. After the tourniquet has been removed, most of the oozing will stop by compression. As few catgut knots as possible should be placed in the wound. The toe is held in very slight overcorrection and a plaster slipper applied, separately enclosing the big toe. The plaster may be split and removed for dressing at the end of the fifth or sixth day. If there is evidence of oozing or persistent pain for more than three days, the wound should be inspected. It is preferable to leave the cast on about two weeks, during which time weight bearing is begun. When the plaster is removed the toe should be held in corrected alinement by means of adhesive plaster, and a shoe or sandal with the toe cut out is worn until the end of the third or fourth week. Several of the best results have been obtained when the patient began wearing ordinary shoes with roomy toes at the end of three weeks. When weight bearing activity is prohibited more than three weeks, persistent symptoms due to the effect of weakness and atrophy are likely to occur.

Fig. 7.—Anatomic reconstruction of the tendons.

Several cautions should be mentioned:

1. Gentle retraction should be used to prevent necrosis of the skin.

2. In removing the external sesamoid, difficulty will arise if the bone is crushed. A hook or towel clamp and sharp pointed dissectors should be used, tension being kept upward on the bone as it is dissected out of its firmly adherent bed.

3. One should avoid the small sensory nerve which lies in the fascia obliquely across the dorsiflexor tendon.

4. There are only two veins of consequence. They may be clamped and tied as exposed.

5. Especial attention should be directed to the occurrence of overcorrection and to flexion deformity of the distal joint. In two of my cases the forces of abduction seemed to gain too great an advantage, and as weight was borne the toe spread out in a most undesirable varus. Both patients were under 25 years of age, and although the deformity of the toes was rather severe the usual chronic proliferation and fibrotic changes had not occurred about the joint, so that lessening the adductor tension permitted the abductors to overdevelop. In both cases the external sesamoid was removed together with complete release of the outer head of the flexor hallucis brevis, whereas in such cases transplantation of the adductor hallucis and the tenotomy of the flexor hallucis brevis would have been sufficient. The complication was well overcome in both cases by lengthening the abductor tendon and by reinforcing the fascia and tendinous tissue at the outer side of the base of the proximal phalanx.

Fig. 8.—Plaster shoes, worn for about two weeks. Weight bearing can be allowed after ten days.

6. Mention should also be made of three cases in which there were circulatory complications. All three patients were past 60 years of age, and, although clinically there were no contraindications except that of age, a portion of the skin along the line of the incision was lost through sloughing. In all three a local anesthetic was used. There should be a great deal of caution in such cases not to traumatize the tissues unduly.

Experience with the procedure brought about the necessity of classifying the cases into types according to the length of time the deformity has existed, the age of the patient, the x-ray appearance of the sesamoid bones and the severity of the deformity, as follows:

1. Age under 30; confirmed deformity, thickened painful bursa, no bone atrophy, sesamoids not displaced.

2. Age from 30 to 60; fixed deformity, large painful bursa, bone hypertrophy or irregularity. Sesamoids displaced and misshaped.

3. Age over 60; same as in type 2, but with the possibility of circulatory deficiency.

4. Patients any age with arthritis of rheumatic nature.

In type 1 the adductor tendon is detached and transplanted to the outer side of the metatarsal head. The capsule on the outer side of the articulation is freed thoroughly, and if necessary the flexor brevis is tenotomized to relax completely the proximal phalanx. The external sesamoid is not removed and little or no excision of bone is made from the inner side of the metatarsal head. The bursa is sectioned so that the abductor hallucis is shortened.

In type 2 the external sesamoid is removed and as much bone is excised from the inner side of the metatarsal head as is necessary to satisfy the cosmetic demand.

In type 3 endarteritis is a distinct contraindication.

In all cases great care is used in respect to trauma and retraction. Release of the adductor tension and excision of the hypertrophied bone and bursa may be accomplished when there is no definite evidence of circulatory deficiency.

In type 4 surgery is postponed until acute or subacute inflammatory activity has entirely subsided. The plastic operation is not suitable when the articular surfaces are unsuitable for painless function of the toe.

SUMMARY

The results in the surgical treatment of "bunions" should be measured by the following specifications:

1. The time of recovery should be not more than from three to four weeks.
2. The corrected alinement should give a normal appearance to the foot and toes.
3. The soreness and pain should be relieved.
4. The joint action should not be appreciably lessened.
5. The patient's expectations should be satisfied.

Release of adductor tension by direct attack on the tendon insertions on the outer side of the base of the proximal phalanx, excision of the bony prominence of the head of the metatarsal and shortening of the capsule to maintain alinement accomplish results that fulfil these specifications.

717 North Robinson Street.

ABSTRACT OF DISCUSSION

DR. PAUL W. LAPIDUS, New York: A bunion is not so much a lateral deviation of the big toe as it is a medial protrusion of the first metatarsal head as the result of the varus position of the first metatarsal. The first metatarsus varus is present in the greater majority of bunions as the primary deformity, the hallux valgus developing secondarily. The first metatarsus varus is often a congenital hereditary condition not infrequently observed in children before the development of real hallux valgus. In the analysis of a typical bunion, at least five mechanical elements may be noted: (1) metatarsus varus, (2) hallux valgus with lateral subluxation of the big toe, (3) lateral displacement of the sesamoids, (4) lateral displacement of the tendon of the extensors of the big toe and (5) internal rotation of the big toe so that the nail of the right and left big toes face each other. I cannot agree too strongly in corroborating Dr. McBride's warning against resecting the first metatarsal head. The operative procedures aiming at realinement of the big toe with the first metatarsal fail to correct the first metatarsus varus. This type of operation, if successfully performed in a case of marked bunion, will create a foot fit to wear a glove rather than a modern shoe. Recurrence of hallux valgus is just a question of a little time. A permanent result can be expected only when the first metatarsus varus is adequately corrected and this correction maintained. The transplantation of the adductor hallucis tendon, according to Dr. McBride's method, is really an attempt at approximation of the first and second metatarsal heads, which are widely separated because of varus position of the first metatarsal. Whether or not this little muscle can accomplish it, especially in case of marked and fixed deformity, is a question in my mind. According to the procedure used in Dr. Leo Mayer's service at the Hospital for Joint Diseases, the sesamoids are easily brought into their normal relation with the first metatarsal head and do not cause any mechanical obstacle for correction of the big toe deformity. We have always been able to correct or even slightly overcorrect the deformity at operation, and this correction has remained when the toe was left unsupported. We do not use any external fixation except a plain postoperative gauze dressing. That is why I do not quite understand the advantage of removing the lateral sesamoid done in some of Dr. McBride's cases. About thirty cases of marked bunions were operated on by this method. The youngest patient was 14 years of age and the oldest 59. Some of the cases have been followed over three years. Our late results have been extremely satisfactory.

DR. EARL D. MCBRIDE, Oklahoma City: In answer to the discussion of Dr. Lapidus on the spreading apart of the first and second metatarsal heads, I wish once more to direct attention to the great advantage of the adductor forces over the abductor forces on the big toe and the relation this has to the entire forefoot, especially the transverse arch. The adductor muscle and the lateral head of the flexor brevis, together with the pressure of the shoe on the end of the big toe, are the forces that tend to press the first metatarsal away from the second metatarsal and pull the toe in valgus. As soon as the lateral sesamoid is removed and adductor tension released, the abnormal pressure on the head of the metatarsal has been relieved and the forces that cause the valgus deformity have been released. The head of the first metatarsal may be brought tightly to the side of the second metatarsal when the sesamoid bone is taken out. In no case has the base of the metatarsal seemed to be an obstruction after removal of the sesamoid. The first metatarsal bone comes home, so to speak, and the forefoot is narrowed to a more normal appearance in addition to the correction of the toe deformity.

THE ABDOMINAL SYMPTOMATOLOGY OF DIABETIC ACIDOSIS

JOSEPH T. BEARDWOOD JR., M.D.
PHILADELPHIA

Diabetes mellitus has definitely increased during the last decade. With the increasing incidence of this disease there has come a greater appreciation of its symptoms and the symptoms of its complications. The disease as well as some of its complications has been named from syndromes which are merely terminal manifestations. In most instances, long before the development of the advanced stages, symptoms have been present which if properly interpreted will enable one to make an earlier diagnosis and in many cases prevent a development of serious and even fatal sequelae.

Thus the symptoms of polyuria and polydipsia from which diabetes has derived its name have developed in only a relatively small percentage of cases when first seen. It is now realized that diabetic gangrene in the vast majority of cases is a terminal condition, the result of definite arterial changes, which many years before the development of gangrene give premonitory symptoms such as intermittent claudication, color and temperature changes in the foot and diminishing or absence of the pulsation of the terminal arteries. The application of the term coma to the terminal picture of diabetic acidosis has resulted in many instances in lack of appreciation of the earlier symptoms and in the postponement of adequate treatment.

The symptoms usually attributed to diabetic acidosis are polyuria and polydipsia, a drowsy restlessness which progresses slowly into coma and is accompanied by a deep regular sighing type of respiration (Kussmaul breathing) and is associated with marked evidences of dehydration. There is another group of symptoms which I feel is of more frequent occurrence and of greater importance from the standpoint of clinical

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recognition of this condition; namely, the abdominal symptoms—i. e., nausea, vomiting, abdominal pain and tenderness, accompanied usually by an increased temperature and a leukocytosis. The fact that diabetic acidosis may be associated with abdominal symptoms has been recognized for some time by many clinicians. Joslin [1] speaks of these among the symptoms of this condition; F. N. Allan [2] and Joslin, Root and White [3] call attention to the fact that nausea and vomiting are important symptoms of diabetic acidosis. From a general perusal of the literature, however, one is impressed with the fact that these symptoms are not properly appreciated by the profession at large and that the frequency of their occurrence is not realized. F. H. Allan [4] feels that this is a new type or form of coma, and he has found it chiefly among patients who have been under treatment and who have violated their diabetic regimen, rather than in previously unrecognized cases of diabetes. This has not been my experience.

TABLE 1.—*Cases in Which There Were Leukocytosis and Fever*

	Cases with Abdominal Symptoms		Cases Without Abdominal Symptoms		Total of Series	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Leukocytosis	69	86	19	57	88	77
Fever	64	79	12	36	76	66
Total cases in group	81		33		114	

This study was made on the last thousand cases of diabetes admitted to my services at the Graduate Hospital of the University of Pennsylvania, the Presbyterian Hospital and the Abington Memorial Hospital. Each of these hospitals presented different types of patients: The graduate service consisted for the most part of Italians, Negroes and Jewish diabetic patients; those at Presbyterian Hospital were Irish and native Americans, and those at the Abington Hospital native born Americans with a large percentage of farmers and rural workers. In addition I have included the private patients who were admitted in coma, and the whole group, I feel, is a cross section of diabetes as seen in Philadelphia and its vicinity. In these 1,000 cases there are 114 cases showing clinical or laboratory evidences of diabetic acidosis, an incidence of 11.4 per cent. In presenting any series of cases of diabetic acidosis it is well to remember that this condition does not develop suddenly but usually over a period of two to three days or more, although the symptoms first calling for medical aid may appear to develop very abruptly. In this series there were eighty females and thirty-four males, the ages ranging from 3 years to 72 years.

As shown in table 1, eighty-one cases, or 71 per cent, showed one or more of the abdominal symptoms, and thirty-three, or 29 per cent, showed either respiratory or comatose syndromes. As will be noted, many of those showing the abdominal symptoms also showed fever and leukocytosis. In only a small number of cases was there fever associated with any infections, and in all but two cases (one a large apical abscess and the other osteomyelitis of the jaw) the temperature showed a decided drop following the treatment of the acidosis alone before any attempt could be made to eradicate the infection. Any patient showing a leukocytosis of over 11,000 was included in this group. The highest count obtained in this series was 42,300, occurring in a child of 11 years and associated with a very acute onset of the abdominal picture.

Nielsen [5] feels that a leukocyte count in these conditions furnishes information not only of the gravity of the acidosis but also as to the indication for insulin therapy. He suggests that a leukocyte count may be used as an emergency differential aid in distinguishing between unconsciousness due to diabetic acidosis and that due to hypoglycemia. The cause for this leukocytosis is not altogether clear.

In diabetic acidosis there is marked dehydration and hemoconcentration, as has been so clearly pointed out by Peters,[6] who feels that this may account for the leukocytosis; but in many of the cases in the present study in which the white count was elevated there was no evidence of concentration of other cellular elements of the blood. Lawrence, Lucas and McCance [7] believed that leukocytosis and a shift to the left in the Schilling count are due to the stimulation of bone marrow by the ketones in the blood. I have attempted to duplicate this experience in rabbits by producing acidosis and have failed to note any marked response even when the plasma carbon dioxide was below 30 volumes per cent. In the vast majority of cases those showing leukocytosis also showed fever, and one would seem justified in assuming that the mechanism responsible for the one was also responsible for the other, and that the rise in temperature might be explained by stimulation of the fever center by the ketones in much the same manner as the respiratory center is thought to be stimulated and orthopnea produced.

The Schilling count in all these cases showed a shift to the left and the predominance of neutrophils. John [8] feels that leukocytosis without a rise in temperature may be a differential point between uncomplicated acidosis and that in which infection is present. However, this has not been my experience in this series of cases. The percentages of these cases showing fever and leukocytosis is shown in table 2.

TABLE 2.—*Cases of Diabetic Acidosis Classified According to Age and Symptoms*

	Age							
	1–10	10–20	20–30	30–40	40–50	50–60	60–70	70–
Nausea, vomiting and abdominal pain	3	10	25	18	12	8	4	1
Dyspnea and orthopnea	2	1	1	1	3	0	0	0
Coma and drowsiness	0	1	3	6	5	6	2	1
Total number of cases	5	12	29	25	20	14	6	2

It must be borne in mind that the infections are often the cause of the development of diabetic acidosis, and these naturally would be accompanied by fever and leukocytosis. Theoretically any acute infection in the abdominal cavity might therefore give rise to diabetic acidosis. I therefore selected from these 1,000 cases

1. Joslin, E. P.: Treatment of Diabetes, Philadelphia, Lea & Febiger, 1928, p. 649.
2. Allan, F. N.: Am. J. M. Sc. **174**: 506 (Oct.) 1927.
3. Joslin, E. P.; Root, H. F., and White, Priscilla: M. Clin. North America **10**: 1924 (March) 1927.
4. Allan, F. H., in Cyclopedia of Medicine, Philadelphia, F. A. Davis Company, 1931, p. 516.
5. Nielsen, O. J.: Ugesk. f. læger. **91**: 1069 (Nov. 28) 1929.
6. Peters, J. P., cited by Lande, Herman: The Uncontrollable Causes of Death in Diabetic Coma, J. A. M. A. **101**: 9 (July 1) 1933.
7. Lawrence, R. D.; Lucas, H. A., and McCance, R. A.: Brit. M. J. **2**: 145 (July 23) 1932.
8. John, H. J.: Am. J. Digest. Dis. & Nutrition **1**: 569 (Oct.) 1934.

of diabetes those which presented definitely proved acute intra-abdominal conditions confirmed by operation. There were fourteen such cases, and they are summarized in table 3. It will be noted that in the very acute conditions, those associated with actual pus, there were none in this series in which acidosis developed, and indeed while it is a dangerous procedure to draw conclusions from such a small group of cases it certainly seems that the acute abdominal emergencies in diabetes do not present the same urgency of symptoms as one sees in the comas alone. I will cite one case of this series:

J. D. K., known to have diabetes for twelve years, was well controlled with diet and was taking 20 units of insulin a day. Rather vague pain developed in the lower right side of the abdomen and for a period of three days there was no rise in temperature and very little muscle guarding. On the fourth day he had a temperature of 99.2 F. and a definite area of soreness over McBurney's point. He was admitted to the hospital for operation and a very large appendical abscess was found, which had walled itself very satisfactorily. The blood sugar on admission was 303; the carbon dioxide combining power of the blood was 54 volumes per cent, and the white blood cells numbered 13,000.

TABLE 3.—*Fourteen Cases of Acute Abdominal Conditions Occurring in a Series of One Thousand Consecutive Patients Admitted Because of Diabetes*

Name	Age	Condition	Blood Sugar, Mg.	Plasma Carbon Dioxide	White Blood Cells	Fever
M. K.	64	Pyelonephritis	210	54	11,000	100
W. H. S.	62	Gangrene of gallbladder	450	42	17,500	99.4
A. O.	54	Ruptured appendix	280	43	14,200	102
M. S.	42	Acute cholecystitis	242	50	15,200	100
J. D. K.	52	Appendical abscess	303	54	13,000	99
H. T. K.	51	Gangrene of gallbladder*	114	64	9,500	99
M. W. B.	47	Pyelonephritis	250	42	10,500	103
E. T.	51	Acute cholecystitis	214	56	11,500	99
R. S.	46	Empyema, gallbladder	195	58	13,500	101
M. T. F.	49	Ruptured appendix	250	44	17,500	102
P. T. W.	46	Pelvic abscess	243	42	16,250	103
M. B. S.	59	Empyema, gallbladder	190	40	10,250	99
R. S.	14	Acute appendicitis	204	49	10,750	99
M. B.	15	Acute appendicitis	195	43	13,700	100

* Developed while in hospital.

As will be shown in table 3 none of these fourteen cases showed any marked evidences of acidosis.

ANALYSIS OF CASES

1. *Age.*—Seventy-two per cent of these cases occurred in the first four decades of life and of these 77 per cent showed an abdominal symptomatology. Fifty-nine per cent occurring in patients above the age of 40 years showed abdominal symptoms.

2. *Sex.*—There seems to be very little difference in the sex distribution of the symptoms. Fifty-three of eighty females and twenty-eight of thirty-four males had a predomination of the abdominal symptoms.

3. *Habitus.*—It is relatively rare to find diabetes in a ptotic individual, and while the majority of the thin diabetic patients in this series had abdominal symptoms, these occurred for the most part in cases of severe diabetes. Only one ptotic individual failed to show the abdominal symptoms, and she was admitted in complete coma.

4. *Duration of Diabetes.*—There was no correlation between the duration of diabetes and the type of symptoms. In eighteen cases diabetes was not recognized before the onset of acidosis, and in all but three the abdominal syndrome predominated. In the other cases the diabetes had existed for from six months to twelve years.

5. *Severity of Diabetes and Acidosis.*—The height of the blood sugar and the carbon dioxide combining power of the blood bore no relationship to the symptoms. The patient having the lowest carbon dioxide reading (7 volumes per cent) had no abdominal symptoms in any stage of acidosis, nor did the patient having the highest sugar (888 mg. per hundred cubic centimeters of blood). Many cases with plasma carbon dioxide of 30 volumes per cent presented nausea, vomiting and abdominal pain.

6. *Other Laboratory Changes.*—An attempt was made to correlate the symptoms with the height of the blood urea nitrogen, cholesterol and chlorides. All the cases studied with but two exceptions showed a high value of blood cholesterol, the figures varying from 250 to 670, and there was no preponderance of the high values in either of the groups. The blood urea nitrogen showed no diagnostic deviation in the two groups. The blood urea nitrogen reading is increased in all severe cases of acidosis and is associated with progressive dehydration and anhydremia. There may be a relationship between the level of blood chlorides and the development of abdominal symptoms, but too few determinations have been made in this series to draw any conclusion as to whether the hypochloremia is the cause of, results from, or is entirely independent of the abdominal picture.

7. *Intra-Abdominal Pathologic Changes.*—Not all the cases were studied for the presence of gastro-intestinal or other abdominal pathologic changes before the onset of acidosis. I am therefore unable to draw any definite conclusions from my figures in this particular. Forty-six of the eighty-one cases presenting abdominal symptoms were studied after recovery from acidosis. Twelve, or 26 per cent, presented some evidence of a pathologic condition of the gallbladder—either cholecystitis or cholelithiasis. None of the younger patients in whom the abdominal symptoms were the most acute showed any clinical or laboratory evidence of gastro-intestinal disease, although two of the children had enlarged livers. This percentage of gallbladder disease is not much greater than that found in any large series of adult diabetic patients.

8. *Symptoms in Previous Attacks of Acidosis.*—Fourteen of these patients had been previously admitted with diabetic acidosis; of these, four were admitted five times and three were admitted four times. These patients showed a tendency to develop the same kind of symptoms with each attack of acidosis, whether abdominal, respiratory or comatose, and several patients recognized the oncoming acidosis because of anorexia and nausea. In one child, aged 11 years, however, two of her five attacks were accompanied by coma without gastro-intestinal symptoms, and on three occasions she had marked abdominal pain. It must be remembered that in diabetic acidosis as in other medical conditions the thoroughness of the history is in direct proportion to the diligence spent in developing it but that an accurate history of the chronological development of symptoms in such a medical emergency as acidosis may be hard to elicit after the lapse of some years.

ADMISSION DIAGNOSIS

Nausea, vomiting and abdominal pain with a rise in temperature and white blood cell count are the diagnostic criteria for an acute abdominal condition, and when one considers that the results of the bedside examinations are almost identical with those in surgical

conditions of the abdomen it is not surprising to find that fourteen of these cases were sent in with surgical diagnoses. These were divided as follows: intestinal obstruction, four; acute cholecystitis, three; acute appendicitis, five; peritonitis, one; acute pancreatitis, one; fortunately only one patient was operated on, and a short history of this will be given later. It is more difficult to understand why a case showing typical Kussmaul breathing, acetone odor of the breath, and evidence of marked dehydration and complete coma was sent in "for study." This patient was found to have a plasma carbon dioxide combining power of 8 volumes per cent and a blood sugar of 480 mg. per hundred cubic centimeters.

DIFFERENTIAL DIAGNOSIS

From the foregoing description it is obvious that the differential diagnosis of diabetic acidosis with abdominal symptoms and an acute abdominal surgical condition presents many difficulties, and when one considers that the two may exist together the problem becomes even more complex. The leukocyte count is of some value. It is usually higher in cases of acidosis than in acute abdominal conditions. The differential count in my experience has been of little value. In the case of acidosis in spite of severe pain there is apt to be less muscle guarding, although this is not a safe criterion to go by. In the vast majority of cases without the aid of blood chemistry and urinalysis it is impossible to make a differential diagnosis. Any patient who has a history of glycosuria or in whom sugar is found in the urine should never be operated on until investigations of blood chemistry have been made. In this particular it may not be amiss to point out that the blood sugar level is no indication of the presence or absence of acidosis and that the plasma carbon dioxide should be determined. However, from the standpoint of therapy it makes little difference whether an immediate differential diagnosis can be made if there is acidosis present, for unless this is controlled surgical intervention is sure to result fatally. The method of procedure, therefore, is to treat the acidosis energetically, which can be sufficiently controlled in a few hours to make possible the determination of the presence or absence of a surgical abdominal condition.

POSSIBLE EXPLANATIONS OF THIS SYMPTOM COMPLEX

Several theories have been advanced to explain the occurrence of these symptoms in diabetic acidosis. One theory has been that it is caused by acute pancreatitis. It is difficult to imagine, however, that such a condition would definitely subside in a period of two or three hours, by the administration of insulin, dextrose and saline solution and leave no demonstrable impairment behind. Then, too, much of the recent work indicates that diabetes is not a pancreatic disease in the vast majority of cases. Another explanation is that the symptoms may be due to an intense spasm of the gastro-intestinal tract. There is no doubt that such spasm exists in many cases, for one can often recover in washings from the stomach of these patients food that had been taken twenty-four hours previously. Another theory is that this is a defense mechanism set up by the organism to rid itself of the acid ions of the gastric juice. It must be admitted that none of these explanations are very adequate and that further work in this field is indicated.

The following three cases are presented in abstract to illustrate the different aspects this syndrome may present:

CASE 1.—M. S., a woman, aged 52, had had for some years recurring symptoms of gallbladder disease. Three years prior to this admission a diagnosis of cholelithiasis was made and she was admitted to the hospital for operation. At this time it was discovered that she had a mild diabetes. She stood her operation well and was easily standardized. On returning home she became careless of her diabetic regimen and was poorly controlled. For about six months before her second admission she had had no laboratory examinations. Six days before she was admitted, anorexia, nausea and constipation developed. This persisted and, thirty-six hours before she was admitted, severe pain in the right upper quadrant of the abdomen and vomiting started. She was admitted with a diagnosis of intestinal obstruction, thought to be a sequel of her previous operation. On physical examination she was markedly dehydrated; the abdomen was distended and there was what appeared to be a mass in the upper right quadrant. The temperature was 103 F., and the white blood cells numbered 33,000 with 86 per cent polymorphonuclear leukocytes. I was asked to see her previous to operation because of the diabetes. The blood sugar at that time was 660 mg.; plasma carbon dioxide, 17 volumes per cent; blood cholesterol, 610 mg. She was immediately started on appropriate treatment for diabetic acidosis, and within six hours the symptoms had greatly ameliorated and within twelve hours had entirely disappeared. The abdomen was normal and there was no palpable mass. She was satisfactorily standardized and has had no return of symptoms for the last three years.

CASE 2.—A man, aged 43, was known to have had diabetes for eight years and had been standardized satisfactorily with diet and insulin. He was prone to be careless about his diet and insulin and, ten days before he was admitted, anorexia and vague abdominal pain developed. After taking home remedies for several days without relief he went to his family physician, who referred him to a gastro-enterologist. Before he could see the gastro-enterologist severe abdominal pain and vomiting developed, and after twenty-four hours he was admitted in well advanced diabetic coma: blood sugar, 425 mg.; carbon dioxide combining power, 7 volumes per cent; blood chlorides, 390 mg.; white blood cells, 24,500. He was treated for diabetic acidosis and after a slow but satisfactory response was restandardized. He was readmitted fifteen months later with an almost identical history, with symptoms lasting for nine days. During his stay in the hospital he was thoroughly studied in the gastro-intestinal department and no pathologic condition was discovered. Quite recently the same symptoms again started but he realized that coma was developing and was able to abort it by proper treatment.

CASE 3.—T. W., a man, aged 72, had for six days previous to admission indefinite abdominal pain, loss of appetite, and nausea. Two days before admission he started to vomit, and more severe pain developed. He was admitted at 3 a. m. with a diagnosis of abdominal obstruction. The temperature at that time was 101 F., and the white blood cells numbered 17,500. The pulse was rapid and irregular; the patient was obviously toxic and semiconscious. The abdomen was distended; peristalsis could not be heard. A diagnosis of intestinal obstruction or paralytic ileus was made and the patient was prepared for operation. Unfortunately the report of the urinalysis was lost, but the case seemed to be one of such emergency that the surgeon proceeded. Under spinal anesthesia the patient's bowels relaxed and an incision was made and a tube inserted. No obstruction was found at operation but because of the patient's condition no extensive search was made. The patient remained stuporous throughout the night, and the next morning the blood sugar was 393 mg., the carbon dioxide combining power was 12 volumes per cent, and the urine was loaded with sugar, acetone and diacetic acid. A history was then obtained. Ten years before, glycosuria was first noticed, and because of the lack of symptoms no attention was paid to this by the patient or his physician. Unfortunately, in spite of heroic treatment, the patient died ten hours after operation.

SUMMARY

In this study of 114 cases of diabetic acidosis it is obvious that the onset was accompanied in the majority of cases by symptoms referable to the gastro-intestinal tract; this is of more than academic interest when one realizes the number of these patients who are referred for surgical treatment. A wider recognition of this syndrome in relation to diabetes would result in an earlier diagnosis of acidosis, a prompter treatment and a lessened mortality. From this survey it appears that this picture is more prone to develop in the younger diabetic patients but that it has no relationship to the duration or severity of the diabetes or the presence or absence of gastro-intestinal disease. The association of fever and leukocytosis is of great importance because it often clouds the picture and renders the diagnosis difficult.

CONCLUSION

Acidosis should always be first thought of in a diabetic patient having nausea, vomiting and abdominal pain, and because of the increasing incidence of diabetes this diagnosis should be suspected in every case presenting the symptoms of an acute condition of the abdomen.

2031 Locust Street.

MANAGEMENT OF UNDESCENDED TESTICLE

CHARLES M. McKENNA, M.D.
AND
EARL EWERT, M.D.
CHICAGO

When the final chapter is written on the subject of cryptorchidism, it will be divided in our opinion into two distinct chapters. One will have to do with the embryology, histology and physiology of undescended testicle, and the second with the anatomy, technic of operation and end results. In the former the name of Dr. Carl Moore[1] of the University of Chicago will stand out prominently, while in the latter the names of Bevan,[2] Torek,[3] Meyer,[4] Cabot,[5] Cunningham, Keyes, Wangensteen,[6] Eccles and others will be noted. Bevan was a pioneer in this work and deserves particular attention, because he has continued to perfect his orginal operation so that at the present time his technic is more generally accepted than any other.

To date there have been more than forty different operations described in the literature. That is the best evidence that no one technic has been accepted as a standard.

This paper will deal chiefly with the anatomy, technic of operation, and end results. In passing we cannot refrain from mentioning the splendid research work done by Dr. Carl Moore. He was the first one to point out the thermostatic value of the scrotum. He proved beyond doubt histologically that the germinal cells take on an irregular appearance and are irregular throughout the seminiferous tubules when the testicle is allowed to remain in the peritoneal cavity or high up in the inguinal canal. He proved, further, that when the testicle is brought down again and placed in the scrotum the germinal epithelial cells rearrange themselves in a normal position and the animal is fertile. Further on in his experimental work he took some of the larger animals, such as the bull and the ram, and strapped the scrotum up against the abdomen. He then made cross sections of the testicle and found exactly the same condition. Here again the germinal cells were irregularly placed throughout the lumen and the animal was sterile, but when the scrotum was unstrapped and permitted to occupy its normal position the germinal cells rearranged themselves and the animal was fertile. From his work one would draw the

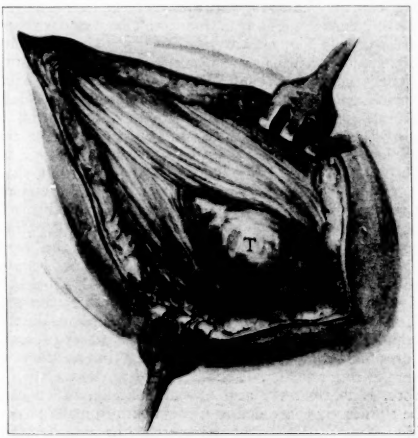

Fig. 1.—Testicle in lower part of inguinal canal with gubernaculum attached to superficial fascia.

conclusion that patients suffering with cryptorchidism should be operated on before the age of puberty. Every urologist should be familiar with Dr. Moore's writings.

We believe that the proper time for this operation is between the ages of 5 and 9 years. At this period the tissues of the cord are sufficiently developed so that one can operate with better results than at an earlier age. There is some difference of opinion as to whether or not in cases of bilateral cryptorchidism the patient will be fertile if the testicles are placed in the scrotum after the age of puberty. Dr. Moore is unable to say whether or not fertility will be present in such a case, as his work has been exclusively on animals. We have had a number of patients under our observation past 21 years of age with bilateral cryptorchidism, all of whom were sterile. A number of those patients have been operated on in our clinic with very good results. To date we have not been able to make an examination of the semen to find out whether these patients have living spermatozoa but hope to be able to report on this soon. Unfortunately, most of

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2. Bevan, A. D.: Double Undescended Testicle, S. Clin. North America **10**: 193-202 (April) 1930; Operation for Undescended Testicle; Further Study and Report, Ann. Surg. **90**: 847-863 (Nov.) 1929.
3. Torek, Franz: Orchidopexy for Undescended Testicle, Ann. Surg. **94**: 97-110 (July) 1931.
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5. Cabot, Hugh: Treatment of Cryptorchidism, Proc. Staff Meet., Mayo Clin. **5**: 198 (July 16) 1930. Cabot, Hugh, and Nesbit, R. M.: Principles and Methods of Treatment of Undescended Testicle, Arch. Surg. **22**: 850-856 (May) 1931.
6. (a) Wangensteen, O. H.: Experimental and Clinical Study of Undescended Testicle, Arch. Surg. **14**: 663-731 (March) 1927; (b) Surgery of the Undescended Testis, Surg., Gynec. & Obst. **54**: 219-231 (Feb.) 1932.

these patients live out of the city. In all the cases we have observed of married men with bilateral cryptorchidism, none have any progeny.

CLASSIFICATION

We have classified this entity into four groups: first, the testicles that are in the peritoneal cavity; second, those in the inguinal canal; third, those just below the inguinal canal, and, fourth, the migrating type in the scrotum and in the canal. This article deals chiefly with the first three groups.

ETIOLOGY

The etiologic factors described by Eccles[7] are: "1. Conditions associated with the mesorchium. 2. Those associated with the testis and its component parts. 3. Conditions associated with the gubernaculum. 4. Conditions associated with the cremaster. 5. Those associated with the route along which the testicle must pass."

John Hunter and Bland Sutton were of the opinion that the testicle failed to descend because of imperfect development. Uffreduzzi was inclined to think that heredity played an important rôle.

In most of the patients we have seen we believe that the failure of the testicle to descend was due more to the peritoneum covering the spermatic vessels and the vas deferens than to any other one factor. We have seen four cases of anomaly in which the epididymis was not in proximity with the testicle. We have seen two cases in which the patient did not present an external inguinal ring. In one of these, a man, aged 34, no difficulty was experienced at operation in bringing the testicle down to its normal bed.

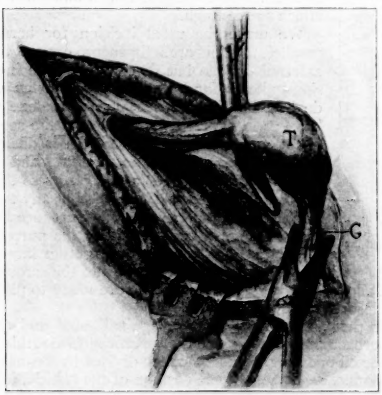

Fig. 2.—Testicle and gubernaculum dissected out.

It is generally agreed that if the testicle does not descend within the first twelve solar months after birth it will not descend of its own accord. One of our patients, however, a dentist aged 40, was born with unilateral cryptorchidism but the testicle did descend of its own accord at the age of 14 years. This patient was operated on for an inguinal hernia just before entering the army during the World War.

FREQUENCY OF OCCURRENCE

An observer in the Austrian army showed that out of every 1,000 men drafted an average of 2.2 had undescended testicle. Marshall found eleven in 10,800 cases; Rennie found six in 10,800 cases, while in the late war the records of the United States Army Medical Department showed that 3.1 per thousand cases showed failure of the testicle to descend.

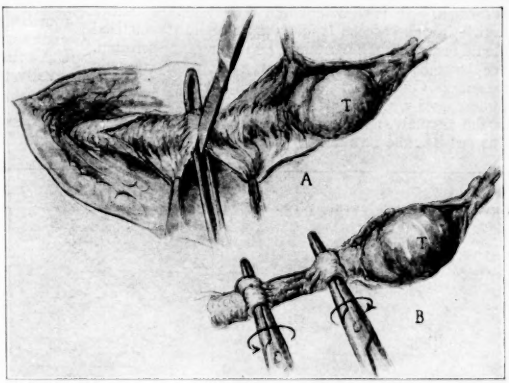

Fig. 3.—*A*, cutting vaginal peritoneum transversely to the cord, with groove director underneath peritoneum and over the cord. *B*, stripping of vaginal peritoneum toward testicle and peritoneal cavity.

INDICATIONS FOR OPERATION

The indications for the operation are summed up in the following way: First, we believe that all patients with cryptorchidism should be operated on before the age of puberty, provided the general condition permits. However, we have operated on many patients after puberty with good clinical results. Furthermore, we believe that operation is indicated because of the possibility of the undescended testicle undergoing malignant change in later life, because of the association with inguinal hernia, because of the possibility of traumatism, because of pain due to the position of the testicle, and for cosmetic purposes. It has already been pointed out that if the testicle is not placed in its normal bed the patient has a good chance of being sterile on that side. Statistics differ and authors do not agree on the possibility of a malignant outcome. Many surgeons point out that it is sufficiently important that when this condition does arise an operation is strongly indicated. Wangensteen, in a recent article, declares that it is more likely for the undescended testicle than for a normally descended one to become malignant. Bevan, on the other hand, does not recall having operated on a single patient with a malignant condition in an undescended testicle. Cunningham in 1921 found that in 462 cases of malignancy of the testes, forty concerned the undescended testis. Kocher observed one case of cancer in 1,000 cases of undescended testicle and the report by Eccles of 154 cases showed no instance of a malignant growth. In our own series of 110 cases, malignancy was not

7. Eccles, cited by Wangensteen.[8a]

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935

observed in any case, but we did see a malignant condition of an undescended testicle in an adult operated on by another surgeon. We do not believe that the question of cancer should be the sole indication for operation in the adult.

We believe that the question of trauma should be considered in all cases of undescended testicle. This is especially true when the testicle is in the canal or below the canal. It is simple enough to visualize that a testicle in this position is much more easily traumatized than a testicle in the peritoneal cavity or in the scrotum. We have had two patients come to us for cosmetic reasons. One patient stated that he was always embarrassed when undressing before other men because of the anomaly, and he felt gratified when the testicle was put into the scrotum by operation.

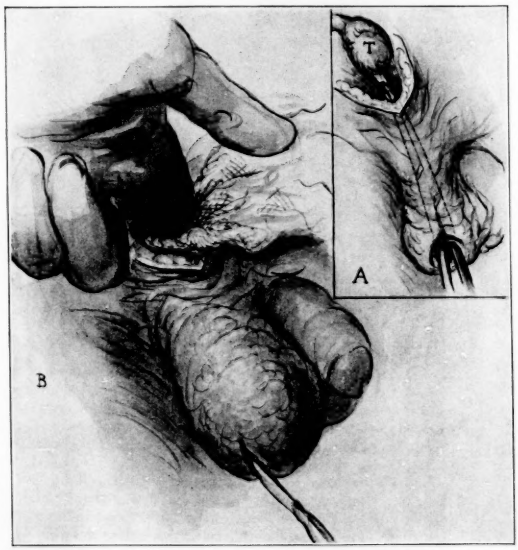

Fig. 4.—*A*, gubernaculum being grasped with forceps to draw testicle into place and transplant gubernaculum into fascia lata. *B*, gauze in scrotal sac in preparation for testicle, and incision being made in scrotum where gubernaculum passes through for transplant.

Pain is an important factor and is a strong indication for placing the testicle in the scrotum. In the migrating type of testicle, we believe it necessary to suture the testicle to the scrotum in order to prevent torsion of the cord, and we also advocate the use of the anterior pituitary-like principle from the urine of pregnancy.

THE VALUE OF PITUITARY-LIKE PREPARATIONS

Much has been written on the value of the anterior pituitary-like gonadotropic hormone obtained from human urine of pregnancy. We believe that anterior pituitary-like principle from the urine of pregnancy has a value in the fourth group, since the testicle is free and movable and has no mechanical obstruction to overcome. When the testicle becomes hypertrophied, gravity alone will produce the descent. It has been shown on animal experimentation in rats treated with the anterior pituitary-like principle from the urine of pregnancy that the interstitial tissue increases but the seminiferous tubules remain the same.[8] We cannot say what the histologic result would be in the human being, but according to Moore the interstitial tissue is increased in rats. It has been our observation that the scrotum develops as well as the testicle. There is a definite place, we believe for the use of anterior pituitary-like principle from the urine of pregnancy; namely, in the fourth group. We cannot concur in the opinions of some writers in believing that it is helpful in all cases. Until further investigation is made, therefore, we shall employ this gonadotropic principle only in the fourth group.

TECHNIC

Bevan emphasizes in his technic on the operation for cryptorchidism the retention of a tunica vaginalis. Torek's method is outstanding because he has provided a means of preventing retraction after the operation. Our technic is a modification of both the Bevan and the Torek operation.

There are two factors to be accomplished in the operation: one, the lengthening of the cord; the other, the retention of the testicle in the scrotum. Bevan believes that he gets sufficient lengthening of the cord to retain the testicle in the scrotum, while Torek and Wangensteen point out that by suturing the tunica albuginea to the fascia in the thigh the testicle will remain in its normal position. In our work, when there is any question of shortening of the cord after the operation is completed, we follow out somewhat the method described by Wangensteen except that we use a portion of the gubernaculum instead of the tunica albuginea to attach to the thigh.

We make the usual incision for hernia parallel to Poupart's ligament, expose the external oblique but do not carry the incision quite as far toward the scrotum as we do in a hernia. This is purposely done to leave as little scar as possible near the spermatic cord. The vacant scrotum is dilated and if a constriction is present, and it usually is, it is incised in two places so that the testicle can remain free without any tension after the operation. We introduce the index finger of each hand for the purpose of dilating and making the scrotum larger. After that, gauze is packed into the scrotum and allowed to remain there until we are ready to place the testicle in its normal bed.

If the testicle is below the inguinal canal and the gubernaculum is attached to the superficial fascia, this is dissected out and the gubernaculum divided by means of scissors. Regardless of the position of the testicle, it is of prime importance to preserve the gubernaculum, as will be indicated later in the paper. The external oblique is now divided just as in performing an inguinal herniotomy. The testicle with its accompanying sac is dissected out as far up as possible toward the general peritoneal cavity. The sac is opened and the cut edges are grasped with artery forceps, including the cord, which gives the appearance of a flat surface. The peritoneum is then divided at right angles to the cord and a grooved director inserted between the spermatic vessels and the vas deferens. The distal end of the cut

portion of peritoneum is grasped with an artery forceps. By twisting the forceps, the peritoneum is peeled off the spermatic vessels and vas deferens as far down as the testicle. The proximal end of the peritoneum, which is the upper end of the cord, is now grasped by the forceps and the same procedure is followed toward the general peritoneal cavity. When the peritoneal cavity is reached, it is easy enough to make an incision parallel with the cord on both sides and this peeling process can be carried as far as may be indicated in the judgment of the surgeon. We emphasize this method particularly because in all our cases we have had no hemorrhage. When the cord has been stripped of its peritoneum, it is easy enough to free the connective tissue holding the spermatic vessels and vas deferens. These two procedures we believe are of the greatest help in elongating the cord. At this point one must decide whether to follow out the general technic of Bevan of allowing the testicle to remain free in the scrotum, or

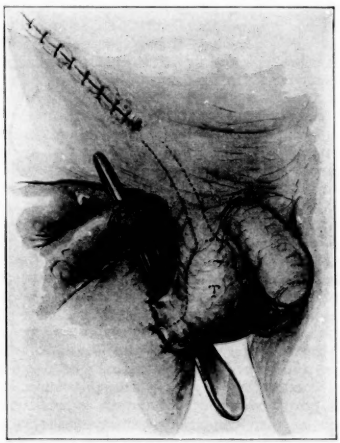

Fig. 5.—Operation completed, with testicle in sac and gubernaculum fixed.

the technic of Torek. In the event that the cord is short and there is a possibility of retraction, it is always advisable to make an anastomosis between the gubernaculum and the fascia of the thigh through a small opening in the scrotum.

In all our cases we have used this technic, even though the cord seemed sufficiently long. This procedure makes the second stage of the operation much more simple, since there is no danger of trauma to the testicle. The second step of the operation is done from six weeks to three months after the first operation. It is performed under local anesthesia and the patient does not have to remain in the hospital. During the interval between operations the patient may go home and is able to go about his duties as he would at any other time.

CONCLUSIONS

1. Preservation of the gubernaculum is essential for perfect testicle fixation.

2. Removal of the vaginal peritoneum is imperative in order to lengthen the cord.

3. The ideal age ranges between 5 and 9 years, although we have operated on patients up to the age of 34.

4. The thermostatic value of the scrotum cannot be overestimated.

5. So far as we know now, the anterior pituitary-like principle from the urine of pregnancy is of value only in the fourth group.

6. The use of the gubernaculum allows the testicle to remain in the scrotum.

7. We recommend the Ferguson technic for closure of the wound.

8. In our opinion the technic described produces more nearly normal results than any other method employed.

25 East Washington Street.

ABSTRACT OF DISCUSSION

DR. R. H. JENKINS, New Haven, Conn.: Cases of undescended testicle present a difficult clinical problem. There have been two methods of relief. One is to wait for the testicle to descend spontaneously. This may occur, but it does not seem reasonable to wait for this descent because of the numerous complications and the possibility of abnormal development of the testicle. The other method of relief is to place the testicle in the scrotum surgically. The results of surgery have not been gratifying. A summary of recent literature shows that operations do not always result in bringing the testicle to the normal low scrotal position. In a series of more than 500 operations reported by Burdeck and Coley, satisfactory results were obtained in about 50 per cent of the cases. I am certain that the technic described by the authors will improve the end results. Recently a third possibility has presented itself: the administration of the anterior pituitary-like principle from the urine of pregnancy. Last year Dr. Aberle and I presented the treatment of undescended testes in man and monkey with this substance. Our results were 50 per cent descent of the testicle in the scrotum. Since then I have been using it as an aid to surgery with gratifying results. It can be administered to a patient as young as 2 years of age. The age at which treatment is instituted is an important factor, because the investigators cannot agree at what age anatomic defects occur in the undescended testicle. Cooper found that undescended testicles in boys more than 2½ or 3 years of age almost always show anatomic defects. Thus the available evidence seems to indicate that the sooner the undescended gland can be placed in the scrotum, the better are its chances of being a normal functioning organ. Following a course of this treatment, if the testicle fails to descend in the scrotum it increases in size and becomes more movable. The scrotum becomes full and large. With the development of these tissues one can operate with greater ease and better results. Following operation, hormone therapy is continued for two weeks, as I believe the retraction of the testicle operated on is lessened.

DR. A. I. DODSON, Richmond, Va.: As I understood it, the authors stated that they did not know of an instance in which undescended testicle occurred in the Negro. In my practice it occurs in the Negro quite frequently, and I expect that others who practice in Southern cities have had the same experience. In my service during the past two years I know that there have been two such cases in which operation was performed and about six months ago a boy, aged 16 years, came into the outpatient department because of urethritis and a mass in the right inguinal region. Examination showed this mass to be acute epididymitis of an undescended testicle. After the epididymitis had subsided, the testicle could be easily demonstrated. Another case, which probably would not come exactly in this category, was of a Negro boy who I thought had bilateral undescended testicle. With the exception of hypospadias, the penis was normal. At operation an undescended testicle was found on one side, and on the other an ovary and a rudimentary uterus.

DR. CHARLES MORGAN MCKENNA, Chicago: In our experience we have never operated on a Negro who had cryptorchidism, although such cases have been reported.

THE ANEMIAS OF NUTRITIONAL DEFICIENCY

ETIOLOGY, DIAGNOSIS, TREATMENT AND PREVENTION

GEORGE R. MINOT, M.D.
BOSTON

The development of information concerning anemia during the past decade has permitted the clear recognition that this condition often may be dependent on defective or deficient nutrition. This idea, however, is not new; for example, in 1651 was written by an anonymous author "[Chlorosis is] chiefly found in young maidens who . . . foolishly feed upon trash." Wide gaps in our knowledge remain and complete information concerning the mechanism of producing anemia associated with nutritional deficiency must be obtained in the future, but at present one can recognize that anemias may arise because of a lack or nonavailability in the body of at least three classes of dietary substances: (1) iron, (2) vitamin C and (3) a mysterious substance contained abundantly in liver and, to a less extent, in certain other organs which, if absent, makes normal blood formation impossible, and anemias of the so-called pernicious type ensue.

ETIOLOGY

The anemias due to a deficiency of the material effective in pernicious anemia are macrocytic, but all cases of anemia with the red blood cells averaging larger than normal are apparently not due to a shortage of this material. The effective substance or substances are perhaps becoming less mysterious as the result of the work of West and Dakin and of Jacobson, Subba Row and Fiske and appear to bear some sort of relation to the vitamin B complex. A deficiency of the material effective in pernicious anemia may be brought about in several ways and undoubtedly more than one mechanism is operative in many cases. It is to be noted that the normal individual, as Castle has shown, obtains the material from a variety of dietary sources because by means of gastric digestion he can derive it from certain precursors which the food contains. Muscle meat, eggs, rice polishings and yeast contain the dietary factor, which is thus associated with a number of sources of the vitamin B complex but is not identifiable with any of the known portions of this complex. The exact nature of the gastric digestive factor is unknown, but it is not one of the well recognized gastric secretory components. It is probable that the gastric reaction proceeds somewhat according to the law of mass action, so that a little of the gastric factor in the presence of a large amount of the food factor, and vice versa, may produce material sufficient to meet to a significant degree the demands of the body. A lack of the digestive power will result in shortage of the necessary substance, which is what happens in virtually all cases of addisonian pernicious anemia. The same state of affairs may occur from total ablation of the stomach or its destruction from cancer, and sometimes in pregnancy. If there is little food containing the precursors there is also a deficit of the substance, as may arise in tropical macrocytic anemias, including sprue, in pregnancy and perhaps in certain cases of pellagra. Faulty absorption of the formed material also can create a deficit of it in the body, as takes place in certain cases of celiac disease, advanced sprue and rare instances of intestinal stenosis and multiple anastomosis, and a deficit may also result from prolonged diarrhea. In liver, kidney and certain other organs the potent material exists preformed, and that is why these organs, in contrast to beeksteak, for example, are effective in pernicious anemia.

Defect of the internal or intermediary metabolism of the effective material may perhaps play a rôle in the production of some cases of macrocytic anemia. There is no real proof of this disorder, but the variation in the injected dose of the same liver extract required for the maximal effects in apparently similar cases suggests, among other reasons, the existence of such a condition. This mechanism has been speculated on to explain, for example, the macrocytic anemia associated with liver cirrhosis, a condition which may occur in a patient with pernicious anemia. Wilkinson has called certain cases of anemia with megalocytosis not responding to liver extract "achresthic anemia (from χρῆσθαι, to utilize)." However, because an anemia does not respond to liver it does not imply that there is inability to utilize or mobilize the material needed by the pernicious anemia patient. Such a condition may exist, but by similar reasoning one would surely not deduce that because cases presenting purpura did not respond to orange juice they were cases of scurvy failing to utilize vitamin C.

Deficiency of vitamin C (cevitamic acid) leads often to anemia of a normocytic or slightly macrocytic type. This anemia, when uncomplicated, responds to this substance and not to liver extract or iron.

The "iron" deficiency anemia or anemias that at present may be thought of as representing this condition are hypochromic and usually microcytic. Hemoglobin deficiency is the feature, and this may arise from lack of material other than iron needed to build the hemoglobin molecule, so that all or some of the conditions referred to for clarity as "iron" deficiency anemia may be primarily dependent on some more subtle or extensive defect. They can, however, be cured or permanently arrested by iron therapy.

These anemias can arise because of an inadequate diet or faulty absorption of iron. The latter condition may depend on various factors altering the motility and secretions of the gastro-intestinal tract and the composition of its contents. Improper mastication and diarrhea may be responsible and gastric achlorhydria can play a rôle in respect to faulty absorption. An improper utilization of hemoglobin-forming materials may also produce these anemias. Information regarding this mechanism is scanty. Certain substances, such as chlorophyll, apparently can enhance the utilization of iron, but little if anything is known regarding the regulation of iron metabolism as compared, for example, with calcium. Loss of iron together with other blood building material is also a common cause of these anemias. This happens from blood loss, especially of chronic nature, and by the fetus obtaining its supplies from the expectant mother.

More than one of these mechanisms is apt to be operative in a given case as, for example, in pregnancy, in which inadequate diet, achlorhydria or otherwise altered digestion and the presence of the fetus are all likely to play a rôle. These anemias, which respond to iron, are especially frequent in women before the menopause. The part played by menstruation is interesting to speculate on. "Idiopathic" hypochromic ane-

Prepared as a chairman's address to the Section on Practice of Medicine at the Atlantic City Session of the American Medical Association in June.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

mia, both of the very mild and of the severe long standing type, belongs in this group, as does the now rare condition chlorosis. "Iron" deficiency anemias are also common in infants and children, in pregnancy and in individuals with "chronic indigestion," chronic ill health and anxieties as their presenting symptoms. Many cases can be attributed to repeated loss of blood, and this factor, operating together with others, is very frequently observed.

FACTORS ASSOCIATED WITH IRON DEFICIENCY AND MULTIPLE DEFICIENCY

Iron alone cannot make hemoglobin or red blood cells, and there are other blood building factors that may be deficient, particularly when "iron" deficiency exists; for example, material contained in that fraction of liver separated by Whipple, which is effective in anemia due to repeated losses of blood. This material is distinct from the material effective in pernicious anemia. Indeed, the exact rôle that many elements of the diet play in the manufacture and maintenance of normal blood is yet to be learned. Whipple has, however, placed on a secure quantitative basis the influence of food on blood regeneration. The strikingly beneficial effect of proper doses of iron in what may be conveniently considered "iron" deficiency anemias certainly may not be wholly dependent on deficiency of this element. Much more information is desirable.

There is very little evidence that in man deficiency of copper plays a significant rôle in the production of anemia. It may perhaps do so occasionally in infants. In human anemia the copper of the blood is usually increased. While it is true that in young children, when iron is supplemented by copper, it sometimes enhances the rate of hemoglobin formation, in adults copper therapy apparently is very seldom of value. These remarks do not detract from the important observations of Hart and Steenbock concerning the rôle of copper in iron metabolism, as shown by studies on certain experimental animals. Traces of copper are usual in pharmaceutical iron preparations and thus are given when iron is prescribed. It is not difficult to create serious copper poisoning by administering relatively small amounts of copper.

In man, dietary deficiency is seldom confined strictly to one factor, nor are the results of disturbances of gastric secretion, of defects of intestinal absorption, or of utilization necessarily concerned in only one type of metabolic process. The combined deficiency of "iron" and the material effective in pernicious anemia is not rare in the same individual. Other double and multiple deficiencies occur in patients with anemia, but usually one of the deficiencies is outstanding. Whole liver, owing to a factor or factors not effective in pernicious anemia, as well as iron, can regenerate the blood in the anemia due to chronic blood loss. The main effect of liver cannot be attributed to its iron content. It is circumstances like these that make it necessary to appreciate that the term "iron" deficiency does not adequately describe all cases placed under this heading. The withdrawal from the tissues of material to make hemoglobin, the influence of substances or physiologic mechanisms on the utilization of iron and hemoglobin building substances must be studied further before there is final knowledge concerning "iron" deficiency anemias. In observing the influence of specific substances the supplementary effect of diet must not be forgotten, and it is obvious that an adequate diet should be taken by everybody.

INHIBITORY FACTORS

The mechanisms outlined for the production of nutritional deficiency anemias are the same as those for the production of any dietary deficient condition. In addition, it is important to appreciate that there are factors which may inhibit nutrition and intensify a deficient state. Thus, in anemia they inhibit blood formation and hinder the action of such therapeutic agents as liver extract and iron. Such factors are infection, serious damage to vital organs, arteriosclerosis and increased or altered metabolism. It also must be recognized that the body should always contain an appropriate reserve supply of nutrient substances readily available for extra demands. The individual whose body has received for a long time only just enough of a nutritional factor, such as a vitamin or mineral, to maintain health may be precipitated into the zone of partial deficiency with the advent of infection. In this instance no clinical signs of deficiency are apt to become apparent. If, however, the individual's nutrition remains for some time close to the level permitting the appearance of symptoms readily attributable to deficiency, and infection ensues, then anemia, polyneuritis, scurvy or some other nutritional defect is likely to become manifest according to the exact circumstances in the given case. Knowledge of partial deficiency states or nutritional instability in man is meager. It is highly desirable to obtain information as to how to determine precisely such states; only a few hints have been given. It is a problem of concern to the health of the world.

DIAGNOSIS

One cannot, of course, adequately treat a patient until a detailed diagnosis has been made. The hasty administration of both liver and iron before the actual needs of the patient have been intelligently considered may lead to embarrassing circumstances. If the anemic patient does not have pernicious anemia, how unfortunate it is to have prescribed both liver and iron and later on when the blood is approximately normal to be unable to determine whether or not he should continue with liver for the rest of his life.

A catalogue of conditions that may be thought of in establishing diagnoses of anemias due to or associated with nutritional deficiency will serve no useful purpose. A few aspects of diagnosis, however, will be considered. The concept of establishing a diagnosis of a deficient state rather than simply of anemia will probably lead to earlier diagnosis and better treatment. Pernicious anemia should be diagnosed earlier than it usually is. It is often not diagnosed until the patient has had definite symptoms for a year or more attributable to a deficiency of the material he needs. Early diagnosis and complete treatment are important in order to prevent the development of neural lesions and to save suffering. The disease should not be allowed to progress until one sees the typical textbook picture of the blood, a patient with a palpable spleen and a grapefruit colored complexion or other signs of pronounced relapse or long standing illness. Early diagnosis implies detailed attention to the patient's history and being alert to detect the disease in patients with "chronic indigestion," a tendency to loose stools, atrophic or recurrent sore tongue, slight signs of neural involvement, achlorhydria and slight macrocytosis of the red blood cells. The use of the tuning fork to detect impaired vibration sense and careful scrutiny of a blood smear are simple but invaluable aids to diagnosis. Multiple sclerosis, spinal cord tumors and other

neurologic conditions must be excluded. The symptoms of anemia per se, such as palpitation, dyspnea and impaired kidney function, for example, should not cause an established diagnosis of heart or kidney disease. The anemia associated with nitrogen retention may be macrocytic, and lesser degrees of increased mean corpuscular volume occur in liver disorders and in other conditions than the macrocytic anemias responding regularly to liver and allied therapy.

A common error is to diagnose pernicious anemia when a patient has chronic anemia due to a fundamental depressed dysfunction of the bone marrow for which little can be done. This happens especially when the color index is not decreased and large red cells are present. This state of affairs may occur in so-called idiopathic chronic "aplastic" anemia and in comparable states arising from benzene and other poisons. Under such circumstances the correct diagnosis may also be one of the types of leukemia without elevation of the white blood cells, occasionally Hodgkin's disease with invasion of the bone marrow and involvement of the bone marrow with tumor metastases or tuberculosis. Idiopathic chronic purpura haemorrhagica (thrombocytopenic purpura) is to be distinguished from these cases.

Cases called idiopathic chronic "aplastic" or aregenerative anemia may represent several conditions, and more knowledge concerning this group is much to be desired. Some, if not all, cases termed chronic malignant neutropenia, panmyelophthisis, hemorrhagic aleukia and achresthic anemia belong to this group. In these chronic cases the bone marrow may vary widely in appearance from an anatomic fatty aplasia to marked hyperplasia with physiologic inadequacy, either complete or with evidences of attempted regeneration of blood. Although usually there is a slow, progressive decrease of all three formed elements in the peripheral blood which originate in the bone marrow, occasionally a slight and very rarely a marked temporary "spontaneous" remission may occur, thus simulating the natural course of pernicious anemia. Bleeding associated with reduction of blood platelets is more common than in pernicious anemia, and persistent leukopenia is a feature. Macrocytic anemia is the rule, but liver extract, even when given in very large doses parenterally, calls forth no worth while response, although rarely a weak response results which is only temporary. Repeated transfusions of blood offer the best palliative treatment. Gastric achlorhydria is only sometimes present, and signs of involvement of the neural system, such as occur in pernicious anemia, are absent. Rarely is the tongue atrophic, and distinctive signs of glossitis do not seem to occur. Fever, simulating that seen in untreated pernicious anemia, increased pigmentation of the skin and terminal ulcerations in the mouth are not unusual.

The occurrence of concomitant conditions must not cause the diagnosis of pernicious anemia or anemia associated with nutritional deficiency to be overlooked. Chronic arthritis is common in pernicious anemia and may lead to considering neural symptoms due to joint disease. Gallbladder disease occurs in about 25 per cent of cases of pernicious anemia and in such cases operations have been done without an appreciation of the existence of pernicious anemia. The coincidence of diabetes mellitus and pernicious anemia in the same individual, although rare, is more frequent than can be accounted for by chance. I have noted that the incidence of diabetes in relatives of pernicious anemia patients is distinctly more common than in a control group. Such relationships offer interesting speculations.

In many cases infection may be the chief cause of anemia, and removal of the cause the important aspect in treatment. In such cases, however, defective nutrition may arise and intensify the anemia, and this aspect of diagnosis should not be overlooked. Thus iron therapy may be delayed when it would be distinctly effective, especially as the infection subsides.

The occurrence of slight splenomegaly in "idiopathic" hypochromic anemia and in some cases of chronic anemia arising in children has led to the diagnosis of splenic anemia and splenectomy, when full doses of iron would have cured the condition and permitted the enlarged spleen to recede behind the ribs.

Menorrhagia may be a symptom of "idiopathic" hypochromic anemia as well as a condition acting to intensify the defective nutritional state. The wrong diagnosis may lead to only local treatment of the uterus when full doses of iron will cause the menstruation to become normal.

Removal of "hookworms" alone will not alleviate the anemia so common in patients infested with these parasites. The defective nutrition usually present must be recognized. Full doses of iron will often promptly restore the blood to normal, which will take place more rapidly if the diet is also made complete.

TREATMENT

In prescribing for anemias arising from nutritional deficiency, the realization that one is treating a patient with a generally deficient nutritional state should be paramount. The anemia is often but one symptom of the defective nutrition. For example, in pernicious anemia the tongue and neural symptoms are dependent on deficiency, and in "idiopathic" hypochromic anemia dystrophy of the nails and alteration in the mucosa of the uterus, leading to abnormal bleeding, appear to be of nutritional deficiency origin. The atrophy of the papillae of the tongue in the latter condition, as well as certain other manifestations, quite probably are not due to iron deficiency per se, but they may be decreased by iron therapy, perhaps because of the better appetite that ensues, which results in partaking of a better diet. Here again, however, more knowledge is needed, for example, concerning the possible interrelated effects of iron and the vitamin B complex.

The object of treatment is not only to eradicate symptoms or place them under control but also to restore reserve supplies and the patient's nutritional state to normal for the rest of his life. The aim must be not only to return the hemoglobin and red blood cells to normal levels and keep them there but also to maintain the blood normal in all respects so that the color index, cell size and volume are normal. But the amount of material necessary to accomplish this may be less than the amount needed to prevent the development or progress of other disorders, such as neural manifestations in pernicious anemia—an important point to appreciate. With liver extract, stomach or other preparations effective in pernicious anemia, the common error is to give too little, particularly after the blood has become approximately normal. Each case is an individual problem. Indeed, the amount of parenterally given liver extract required in macrocytic anemia may vary tenfold. The variation for the optimal dose of iron is apparently less. The cases requiring the largest amount of iron are severe ones of long standing "idiopathic" hypochromic anemia, while among the

cases responding maximally to one third or even one fourth of this amount are those of chronic blood loss without achlorhydria or chronic dietary or digestive disorder. In the former condition maintenance of iron therapy is often necessary to prevent relapse; in the latter state the patient is truly cured when the blood and body reserves become normal and he continues to take a satisfactory diet. In practice it is wise to use a large dose, one certain to cover the patient's requirements. Recovery should not be delayed by economy of a relatively inexpensive remedy. To give somewhat too much iron does no harm, except in rare instances of distinct intolerance.

Remedial substances for many nutritional deficiencies may be given parenterally as well as orally. Thus, optimal amounts can easily enter the body and defective absorption be overcome. Some of these substances, such as liver extract, are in the range of from fifty to 100 times as effective by the parenteral route. This route is the one of choice for liver extract in sick individuals, those requiring large doses or those with spinal cord lesions. The procedure is economical and convenient, and it gives assurance of sufficient material entering the body on selection of an appropriate dose for the given patient.

There is no need for the parenteral use of iron except, perhaps, in an extremely rare case. A distinctly effective daily dose parenterally is close to a toxic dose. Thus the injection of small doses every few days is to be deplored. The problem of what preparation of inorganic iron or liver extract or allied substance to use resolves itself into choosing any one of many effective preparations and giving an appropriate amount of that particular preparation for the given patient. The daily dose of the iron salts is variable, the maximum for iron and ammonium citrate being in the range of 6 Gm., and of ferrous sulphate in the range of 1 Gm. Among available liver and allied products there is a wide difference in potency when compared with whole calf's liver or with the amount of material from which an extract originally came. The use of liver extract and iron together should be judiciously decided. The development of hypochromic red cells or a lag in hemoglobin production in a patient with pernicious anemia calls for both. Some patients, particularly benefited by iron, may perhaps have recovery speeded by the use of these two substances. The effectiveness of suboptimal doses of iron with liver in hypochromic anemias may be no greater than an optimal dose of iron. The addition of Whipple's liver factor to iron may be of distinct value in certain cases. The important matters to bear in mind are that either liver extract of the type effective in pernicious anemia or iron will be the chief agents to use and that combinations employed at random will often waste the patient's money and may prevent an understanding of the needs of the patient. It must be remembered, also, that treatment means still more than administering substances to offset deficiency. Satisfaction with great improvement in the patient is not enough; he must be made as well as possible. All aspects of the case must be attended to, including the individual's manifold problems of thought and action.

PREVENTION

The prevention of illness is much simpler and more desirable than successful therapy of the sick man. A diet nicely adjusted with respect to all its constituents at an optimum—not a usual—level permits development of the organism to proceed uninterruptedly and the health of the individual to be maintained as near the optimum as possible. Ideally, nutritional defects should be detected when individuals begin to pass into the zone of suboptimal nutrition and thus prevent the development of disease. At present this state is usually difficult to prove but often can be suspected, particularly by a detailed study and careful evaluation of the dietary history. The physician should appreciate when he prescribes a diet for one reason or another for more than brief periods of time that it must be complete. It is not very rare to be able to detect nutritional disturbance due to prescribed diets as, for example, for peptic ulcer and chronic nephritis.

Certainly a good diet throughout life will aid in the prevention of anemia. Consideration of such matters as are mentioned later will do likewise. A careful study of near relatives of a pernicious anemia patient may reveal in one or more of them gastric achlorhydria with or without slight abnormality of the blood, although the individual considers himself well. In view of the familial incidence of pernicious anemia, the presence of achlorhydria in such a case may indicate a "latent" one of pernicious anemia. Liver therapy for that person may prevent, perhaps, the development of distinctive disease. The frequency of hypochromic anemia during the first year of life in babies born of anemic mothers may be minimized if such infants are given small doses of iron as a routine procedure. The development of hypochromic anemia in pregnancy is common. Iron administration frequently can prevent the development of hypochromic anemia in pregnant women and thus aid to prevent anemia in the child. Anemia will also become less frequent if an attitude is taken that all edentulous individuals must have properly fitted false teeth and that the diet for all patients with "chronic indigestion" should be very carefully regulated. It is of great importance to recognize the frequency with which repeated losses of menstrual blood in slight excess of normal lead to anemia, as well as repeated small losses of blood from any source. Attention given early to this state of affairs will also minimize the occurrence of anemia.

CONCLUSION

The practice of prevention is the ultimate goal of the physician. Success often depends on inherent interest, on attention to detail and on an understanding of the etiologic and physiologic mechanisms involved in a given case. There is much more to be learned about the anemias and nutrition. With the progress of knowledge there should be much less suffering from disorders due to, or associated with, nutritional deficiency.

Onset of the Menopause.—Menstruation ceases ordinarily at about the age of 47, with, however, wide variations in individual women, as I have already mentioned. The function may disappear in either of two ways. In some women the periods occur quite regularly up to a certain age, and then very abruptly the function ceases, with no further appearance of the flow. Much more frequently, however, the disappearance of menstruation is more gradual. A menstruation is skipped, and then there is another period, or perhaps even several periods, often quite normal in character. And then there is another skipping of longer duration, perhaps several months, and this alternation of normal menstruation and long phases of absence of the flow may stretch over a year or two before the flow disappears for good. Such "dodging" of the periods, therefore, is quite normal at this time of life.—Novak, Emil: The Woman Asks the Doctor, Baltimore, Williams and Wilkins Company, 1935.

SHOULD HETEROPHILE ANTIBODY BE USED IN THE TREATMENT OF PNEUMOCOCCIC PNEUMONIA?

MAXWELL FINLAND, M.D.
BOSTON
JAMES M. RUEGSEGGER, M.D.
DURHAM, N. C.
AND
LLOYD D. FELTON, M.D.
BALTIMORE

The investigations of Bailey and Shorb [1] and of Jamieson, Powell, Bailey and Hyde [2] have prompted the addition of heterophile antibody, produced in rabbits, to the usual antipneumococcus serum in the treatment of human cases of pneumococcic lobar pneumonia. The justification for the use of such a mixture and the alleged claims for the superiority of such a product may be summarized briefly: 1. In human cases of pneumonia, just as in rabbits injected with cultures, the pneumococcus is said to exhibit the properties of a heterophile antigen. 2. The patient's pneumococci and the injected horse serum (which is known to be an active heterophile antigen) are said to combine with the natural heterophile antibody and render the latter inactive with regard to its alleged protective action against invasion by the pneumococcus. 3. This antigen-antibody combination may account for the "primary toxicity" of therapeutic horse serum and the untoward reactions observed after its administration. 4. By virtue of the non-type specific nature of heterophile antibody, serum to which such antibody is added is alleged to be effective against pneumonia due to all types of pneumococci, regardless of its strictly type-specific mouse protective antibody content. 5. By analogy with the therapeutic results in the experimental dermal pneumococcic infection in rabbits, much smaller doses, in terms of mouse protective units, are said to be therapeutically effective when fortified with heterophile antibody. 6. Finally, it is argued that the heterophile antibody combines with the heterophile antigen of the therapeutic horse serum and with that of the residual pneumococcus antigen, which is claimed, though not proved, to reside in antipneumococcus serum. These heterophile antigens may thus be neutralized, thereby eliminating the hazard of untoward reactions and providing a more favorable condition for a curative attack on the pneumococcic infection.

None of these claims are, to our knowledge, substantiated by the published reports of carefully controlled and analyzed series of cases by competent observers, such as have resulted in the adoption of the use of the unadulterated specific antibody in the treatment of the homologous type of pneumococcic pneumonia. On the contrary, these claims are based almost entirely on reasoning from data derived from rabbit and guinea-pig experiments.

One of the major arguments which are alleged to justify the therapeutic application of the results of the rabbit experiments is the claim that, in convalescence from pneumococcic pneumonia, human patients develop heterophile antibody of comparatively high titer. This observation was first made by Bailey and Shorb [1a] and is frequently referred to in discussing the rationale of this new form of therapy. We have searched for the evidence for this claim and have found data recorded in only one case.[1a] This is in striking contrast to the large number of animal experiments recorded in great detail.[3] On the contrary, in several reports of large series of hospital cases, including many varieties of febrile diseases, which have been tested for heterophile antibody, significantly high titers have been recorded only in cases of infectious mononucleosis,[4] in occasional cases of leukemia [5] and in cases of serum sickness.[6] In fact, most of the recent reports indicate that the detection of heterophile antibody in large amounts in patients who have not recently received injections of horse serum may be used as a diagnostic test for infectious mononucleosis.

In order to shed some light directly on the relationship of heterophile antibody to the course of lobar pneumonia in man, we studied the content of sheep cell hemolysin in the serums of 120 patients with pneumococcic pneumonia, including twenty-four who were treated with concentrated antibody from antipneumococcus horse serum. The serums of subjects immunized with potent pneumococcus antigenic fractions and of normal controls were tested for comparison. A total of 671 serums were examined. The results of these tests were analyzed in detail and are recorded elsewhere.[7] Briefly, we felt justified in concluding, on the basis of our observations, that heterophile antibody has no relationship to the course or outcome in human cases of pneumococcic pneumonia.

First and foremost, our data failed to show that pneumococci, when active in causing pneumonia in man, exhibit the characteristics of heterophile antigen. Thus, appreciable decreases in hemolytic titer were not frequently encountered in the serums of fatal or bacteremic patients. On the contrary, cases were encountered in which high and increasing titers were associated with persistent, and even increasing, bacterial invasion. This is in striking contrast to the heterogenic activity exhibited by most of the pneumo-

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Departments of Medicine and of Preventive Medicine and Hygiene, Harvard Medical School.

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1. Bailey, G. H., and Shorb, M. S.: (*a*) Heterophile Antigen in Pneumococci, Am. J. Hyg. **13:** 831 (May) 1931; (*b*) Chemical and Immunological Properties of Pneumococci and Other Heterophile Antigens, ibid. **17:** 329 (March) 1933; (*c*) Immunological Relationships of Pneumococci and Other Heterophile Antigens and Biological Significance in Pneumococcus Infections, ibid. **17:** 358 (March) 1933.

2. Powell, H. M.; Jamieson, W. A.; Bailey, G. H., and Hyde, R. R.: A Comparative Study of Antipneumococcus Serum Containing Heterophile Antibody, Am. J. Hyg. **17:** 102 (Jan.) 1933.

3. Bailey and Shorb.[1] Powell, Jamieson, Bailey and Hyde.[2]

4. Bunnell, W. W.: A Diagnostic Test for Infectious Mononucleosis, Am. J. M. Sc. **188:** 346 (Sept.) 1933. Bernstein, A.: Antibody Responses in Infectious Mononucleosis, J. Clin. Investigation **13:** 419 (May) 1933. Stuart, C. A.; Tallman, Juanita, and Brintzenhoff, Esther: Sheep and Rabbit Cell Agglutinins in Horse Serum Sickness and Infectious Mononucleosis, J. Immunol. **28:** 85 (Feb.) 1935. Weinstein, G. L., and Fitz-Hugh, T., Jr.: The Heterophile Antibody Test in Leukemia and Leukemoid Conditions, Am. J. M. Sc. **190:** 106 (July) 1935. Boveri, R.: Ueber das Vorkommen heterophiler Antikörper bei lymphoidzelliger Angina, Klin. Wchnschr. **12:** 666 (April 29) 1933. Bailey, G. H., and Raffel, Sidney: Hemolytic Antibodies for Sheep and Ox Erythrocytes in Infectious Mononucleosis, J. Clin. Investigation **14:** 228 (March) 1935.

5. Van Ravenswaay, A. C.: The Heterophile Agglutination Test in the Diagnosis of Infectious Mononucleosis, New England J. Med. **211:** 1001 (Nov. 29) 1934.

6. Deicher, H.: Ueber die Erzeugung heterospezifischer Hämagglutinine durch Injektion artfremden Serums, Ztschr. f. Hyg. u. Infektionskr. **106:** 561, 1926. Davidsohn, I.: Heterophile Antibodies in Serum Sickness, J. Immunol. **16:** 259 (March) 1929. Davidsohn, I.: Further Studies on Heterophile Antibodies in Serum Sickness, J. Immunol. **18:** 31 (Jan.) 1930.

7. Finland, Maxwell; Ruegsegger, J. M., and Felton, L. D.: Heterophile Antibodies in Pneumonia, J. Clin. Investigation **14:** 683 (Sept.) 1935.

coccus strains used by Bailey and Shorb in their rabbit immunization experiments. Most if not all of the organisms with which they worked were laboratory strains of unknown virulence. In fact, the strain most active as a heterophile antigen and used most in producing the heterophile antibody for the curative and protective experiments was a totally avirulent strain derived from a type I pneumococcus.[8]

If heterophile antibody in human serum behaves like many other natural or acquired antibodies, it may be anticipated that the titer will be relatively lower during an acute febrile disorder, later to return to a relatively higher level. This is the so-called anamnestic reaction so well exemplified by the Widal reaction in persons who have previously suffered from typhoid or who have received protective inoculations. This phenomenon may have accounted for the slight changes in heterophile titer observed in a few of the cases. When, however, the serums of pneumonia patients were considered as a group, after excluding those obtained following therapeutic horse serum administration, and were compared with the serums from the normal controls, on the one hand, and from the immunized individuals, on the other, the various titers of sheep cell hemolysin were encountered with very similar frequency in each of these three groups.

Our observations in cases treated with concentrated pneumococcus antibodies (Felton) indicated that this highly refined product retains the heterophile antigen which has been demonstrated by other observers in normal horse serums and in various crude unconcentrated therapeutic horse serums.[6] This is evidenced by the sharp drop in the hemolytic titer immediately after the administration of Felton's serum and the marked rise in titer that follows a week or more later, particularly in patients who develop serum sickness. In spite of this finding, untoward immediate reactions were only rarely encountered. Rapid clinical improvement with immediate clearing of bacteremia, on the other hand, is the rule in suitably chosen cases properly treated with adequate amounts of the homologous type-specific antibody.[9] We therefore feel that there is no justification for the contention that concentrated antipneumococcus serum, in acting as a heterophile antigen, is primarily toxic and, by combining with the patient's natural heterophile antibody, may give rise to untoward reactions and otherwise disturb the immunologic mechanism so as to encourage invasion by the pneumococcus.

The claims that were outlined and that are alleged to indicate the superiority of antipneumococcus serum containing heterophile antibody over the unadulterated type-specific antibody may temporarily increase the sale of this material to an ever hopeful and credulous medical public. To our mind, however, such claims, unless based on careful, well controlled observations in a large number of clinical cases, unfairly divert the unsuspecting physician from the use of a therapeutic agent the efficacy of which, within its limitation, is substantiated by a wealth of data collected by a large number of competent observers.

Nor are such claims without their danger. The importance of adequate dosage, in terms of type specific antipneumococcus mouse protective units, has been emphasized by most physicians with experience in this field. This is particularly true in cases of type II pneumococcic pneumonia. The temptation to use small doses on the basis of such unwarranted claims may spell the difference between success and failure of serum therapy in such cases. In certain cases of type III pneumococcic pneumonia, moreover, there is some evidence to indicate that the administration of heterologous antiserum may be harmful. There is no reason to believe that this possibility is removed by placing on the patient the additional burden of coping with still another foreign substance. Many physicians are still timid with regard to the use of serum that must be given intravenously, even when it is indicated. This is due to the fear of possible reactions of hypersensitiveness. This hazard is obviously doubled by the addition of rabbit serum. Many patients will be given serum from which no beneficial effect can be expected because of inadequate potency in the homologous type antibody. Such patients will be exposed unnecessarily to the hazard of serum administered when a curative effect is hardly to be anticipated. The great expense of such procedures, when uselessly applied, also deserves consideration. Physicians will be encouraged to dispense with "typing" their pneumonia cases; thus the chances of obtaining potent homologous specific antiserum which might prove therapeutically useful will be definitely diminished.

The final contention that untoward reactions are eliminated by the addition of heterophile antibody has been answered, in part, in the preceding paragraphs. It may be added that we are aware of no direct evidence to support such a claim. In the only patient treated with this mixture, a case of type I pneumonia in a young adult, whom one of us was privileged to see, severe thermal reactions followed each of five small doses administered with the usual care and precautions, and the effect on the course of the disease was negligible. From general considerations, we feel that more severe and more frequent reactions may be expected from the use of the combined rabbit and horse serum than are now encountered in the use of most of the simple, concentrated antipneumococcus serums. It is to be recalled that the elimination of such reactions from the use of these serums was the result of much painstaking research, although their cause still remains unknown.

It must be emphasized, in all fairness, that this discussion is not based on direct observation of the use of serums fortified with heterophile antibody in a significant number of cases of pneumonia. That, in the last analysis, is the final criterion on which the use or discard of such a product will depend. We feel, however, that our study in human cases is significant in showing that the results of the rabbit experiments that have inspired this product are not necessarily applicable in the therapy of lobar pneumonia.

It is now more than a quarter of a century since the use of homologous antiserum was first recommended in the treatment of pneumococcic lobar pneumonia. The field of usefulness of such serum has been extended only slightly during this time. Whatever extension has been made is due, in large measure, to the development of satisfactory methods of concentration, which have materially simplified its application and reduced

8. Bailey and Shorb.[1a] Powell, Jamieson, Bailey and Hyde.[2]

9. Sutliff, W. D., and Finland, Maxwell: Type I Pneumococcic Infections with Especial Reference to Specific Serum Treatment, New England J. Med. **210**: 237 (Feb. 1) 1934. Finland, Maxwell, and Sutliff, W. D.: The Specific Serum Treatment of Pneumococcus Type II Pneumonia, J. A. M. A. **100**: 560 (Feb. 25) 1933.

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the hazard of its use. The further classification of pneumococci [10] has also opened a field for the development of new specific serums that may prove to be effective in the future. The present use of homologous antipneumococcus serums and concentrates is dependent on an extensive, collective experience of many observers who have made special efforts at careful study and control. Their full field of usefulness, even within their limitations, has not been attained.

We feel that physicians should weigh this collective experience against theoretical claims that have yet to be justified.

THE ANTIGENIC VALUE OF VARIOUS PREPARATIONS OF DIPHTHERIA TOXOID

A COMPARATIVE CLINICAL STUDY

CLAIRE E. HEALEY, M.D.
CHICAGO

Since 1929 diphtheria toxoid has been used in the immunization of nurses at the Cook County Hospital. Many of the nurses in this group are either in the postgraduate school or come from affiliated schools for the contagious or pediatric service. The time for immunizing them is therefore limited. It is important also that the immunization interfere as little as possible with their training school courses. Because of reactions observed at times in adults on the administration of toxoid, it has been found advisable to give an initial dose of 0.1 cc. followed at weekly intervals by 0.25 cc., 0.5 cc., 1 cc. and from 1.5 to 2 cc. The small initial doses probably in most instances confer little immunity but may serve to desensitize the individual to the proteins contained in the toxoid mixture so that the larger doses can be tolerated with less reaction. Retests are made after an interval of two weeks has elapsed following the injection of the last dose. If the Schick test is still positive at this time, the last dose is repeated.

During the summer of 1934 it was observed that an increasing number of nurses were requiring one or more extra doses of toxoid in order to obtain completely negative Schick tests. This observation was verified by a study of records kept by the Scarlet Fever Committee, covering the immunization of nurses at the Cook County Hospital and other hospitals in Chicago with diphtheria toxoid. In making this study, consecutive patients were chosen from the records, provided that the sum of the largest diameters of their reactions was at least 30 mm. and that these tests were described in the records as bright red and indurated or moderately red and indurated. It was likewise a provision of choice that these persons should have received commercial toxoid in doses of 0.1 cc., 0.25 cc., 0.5 cc., and 1 or 1.5 cc. at weekly intervals, and that they should have been retested from two to three weeks following the injection of the last dose. The original Schick tests and retests were read at an interval of forty-eight hours. Any redness or induration at the site of injection of the toxin in excess of redness or induration at the site of injection of the boiled toxin control constituted a positive test.

10. Cooper, Georgia; Rosenstein, Carolyn; Walter, Annabel, and Peizer, Lenore: The Further Separation of Types Among the Pneumococci Hitherto Included in Group IV and the Development of Therapeutic Antisera for These Types, J. Exper. Med. 55: 531 (April) 1932. From the John McCormick Institute for Infectious Diseases.

The persons used in this study were classified according to the year in which they were immunized. The commercial toxoid used was obtained from three different commercial houses. Table 1 shows the results of this study.

Since these results seemed to indicate that commercial toxoid has been decreasing in antigenic value during the past two years, toxoid made by Ramon in the Pasteur Institute at Garches, France, was obtained for comparison.

Two groups of nurses were chosen as nearly as possible of the same age and immune state as indicated by their Schick tests. To one group of ninety-two nurses, the toxoid obtained from Ramon was given. To another group of ninety-five nurses, commercial toxoid purchased in the open market was given. For each series, individuals were chosen the sum of the largest diameters of whose reactions was at least 30 mm.; all the tests were bright red or moderately red and indurated. The toxin used for the Schick test was standardized before and following the completion of the experiment. It was found on each occasion to fulfil the requirement for potency as prescribed by the United States Public Health Service. Dilutions of this toxin were made the morning of the day on which these tests were done. The Schick tests were read at forty-eight and ninety-six hour intervals. Any redness or induration at the point of injection of the toxin at either forty-eight or ninety-six hours in excess of redness or induration at the point of injection of the boiled toxin control was considered as constituting a positive test. Doses of 0.25 cc., 0.5 cc., 1 cc. and 2 cc. were given at

TABLE 1.—*Commercial Toxoid Giving a Bright Red or Moderately Red Indurated Reaction*

Year	Age Limits, Years	Average Age, Years	Average Size of Schick Test, Mm.	Time of Reading of Test	Last Dose to Retest, Weeks	Number Immunized	Positive Retests		Negative Retests	
							Number	Per Cent	Number	Per Cent
1930	18-35	22.52	50.89	48 hr.	2-3	266	41	15.41	225	84.58
1931	18-35	22.11	45.04	48 hr.	2-3	472	108	22.88	364	77.11
1932	18-35	22.01	44.80	48 hr.	2-3	201	31	15.42	170	84.58
1933	18-35	21.81	46.60	48 hr.	2-3	241	71	29.46	170	70.53
1934 Jan. to Sept.	18-35	22.56	44.73	48 hr.	2-3	71	26	36.61	45	63.38

TABLE 2.—*Summary of Experiment with Various Toxoids Resulting in Reactions Described as Bright Red Indurated or Moderately Red Indurated*

Toxoid	Adults Having Original Test and Retest	Average Age, Years	Average Size of Test, Mm.	Time of Reading	Last Dose to Retest, Weeks	Total Amount of Toxoid Used, Cc.	Positive Retests		Negative Retests	
							Number	Per Cent	Number	Per Cent
Ramon, 1929	70	23.0	42.62	48 hr.	6	2.5-3.0	5	7.14	65	92.85
Commercial, 1930	266	22.56	50.89	48 hr.	2-3	2.5-3.0	41	15.41	225	84.58
Ramon, 1934	92	21.88	53.65	48 and 96 hr.	2	3.75	18	19.56	70	80.43
Commercial, 1934	95	21.03	52.98	48 and 96 hr.	2	3.75	47	49.47	48	50.52

weekly intervals. Retests were made two weeks following the injection of the last dose.

In 1929 Dick and Dick [1] reported the results of a study made on a group of 100 individuals immunized with toxoid prepared by Ramon at the Pasteur Institute. The technic of immunization used in this study consisted of the administration of an initial dose of 0.5 cc. followed by a second dose of 1 cc. in two weeks and a third dose of from 1 to 1.5 cc. fourteen days later. Retests were not made until at least six weeks had elapsed after the last dose was injected. Original tests and retests were interpreted after forty-eight hours had elapsed. Ninety-five per cent of the individuals so immunized had negative Schick tests at this time. Seventy of the 100 individuals in this series were over 18 years of age. Of this number 92.8 per cent were completely immunized. In this group of seventy the reactions had an average size of 42.62 mm., and were described as bright red and indurated or moderately red and indurated. This study is used in a comparative manner and attention is called to the points at which the technic of the study differed from that in the present one.

Table 2 summarizes important comparative figures in the present experiment and compares them with the results obtained by the Dicks in 1929 and the results with commercial toxoid in 1930.

COMMENT

The difference in the percentage of persons completely immunized in the present series to whom Ramon's toxoid was given and the percentage completely immunized in the series reported by the Dick's in 1929 may be accounted for by the difference in the average size of the tests, the interval that elapsed between the doses, the length of time that elapsed before the retesting was done and the ninety-six hour as well as the forty-eight hour reading of the tests made in the present experiment. If allowance is made for these differences, it may be concluded that toxoid prepared in the United States in 1929-1932 was about equal in antigenic value to that prepared by Ramon in France in 1929 and in 1934.

However, from 1932 to 1934 there has occurred a decrease in the antigenic value of diphtheria toxoid on the market in this country, this decrease being evidenced by a decline of from 20 to 30 per cent in the number of susceptible adults completely immunized by the use of the same technic. Meanwhile the antigenic value of the French toxoid has remained practically the same.

The results obtained for both the French and the American toxoids used in the present experiment might have shown a higher percentage of persons immunized had the retests been made after a longer time had elapsed.

The methods used in the four series reported are comparable, and the results justify the conclusion that the antigenic action of the present American preparations is low as compared with earlier American preparations and as compared with earlier as well as recent French preparations.

The results indicate a need for better application of the present methods or for better methods for control of the antigenic value of diphtheria toxoid in this country.

637 South Wood Street.

1. Dick, G. F., and Dick, Gladys H.: Immunization Against Diphtheria, J. A. M. A. **92**: 1901 (June 8) 1929.

LOW CALORY, LOW FAT, KETOGENIC DIET FOR TREATMENT OF INFECTIONS OF URINARY TRACT

REED M. NESBIT, M.D.
AND
C. H. McDONNELL, M.D.
ANN ARBOR, MICH.

The value of ketonuria in the treatment of certain types of infections of the urinary tract has become widely recognized and utilized. Although the ketogenic diets recommended by Clark [1] have proved their worth as a therapeutic agent, it has been constantly observed that a considerable proportion of patients placed on this regimen find it unpalatable, and many are completely unable to tolerate it. In a series of fifty cases treated by this method at the University Hospital, it was observed that practically every patient was upset by the diet at one time or another. The gastric upsets produced by its high fat content were so objectionable to some that they refused to continue on this regimen. Modifications of the diet were therefore made in an effort to remove this objectionable feature.

TABLE 1.—*Menu Plan*

Breakfast:	Luncheon:
Egg, 1	2 eggs or 2 ounces of meat or fish or 3 tablespoonfuls of cottage cheese
Bacon, 2 long strips	
Cream or milk, 1 tablespoonful	
5% vegetable, ½ cup cooked	5% vegetable, ½ cup cooked or ½ cup raw; or
* Bran wafers as desired	5% fruit
Butter as desired	Cream or milk, 1 tablespoonful
Tea or coffee	* Bran wafers as desired
	Butter or mayonnaise as desired
	Tea or coffee

Dinner the same as luncheon.

Sample Menus for Day

Breakfast:	Luncheon:
1 egg fried with 2 strips of bacon	Cottage cheese, 3 tablespoonfuls
½ cup of tomato juice	½ head lettuce with 2 tablespoonfuls of mayonnaise
Bran wafer with butter	Bran wafers with butter
Coffee with 1 tablespoonful of cream	Coffee or tea with 1 tablespoonful of cream

Dinner:

Steak, 2 ounces.
Cooked spinach, ¼ cup with butter
Raw celery, 2 stalks
Bran wafer with butter
Coffee or tea with 1 tablespoonful of cream

No sugar is allowed. Chewing gum, chewing tobacco, toothpaste, sweetened cathartics and the like are not allowed. Gluside may be used for sweetening. Fruits must be fresh or canned without sugar.
* Bran wafers must have no food value.
Mayonnaise should be made without sugar.

It has long been recognized as a fundamental principle of metabolism that the organism is not dependent on exogenous fat for its metabolic mixture, calling on its endogenous supply whenever the energy of the diet is below the expenditure of energy.[2] This being true, the production of ketosis is solely dependent on an inadequacy of available dextrose, which is supplied

From the Department of Surgery, University of Michigan Medical School.

1. Clark, A. L.: Escherichia Coli Bacilluria Under Ketogenic Treatment, Proc. Staff Meet., Mayo Clin. **6**: 605-609 (Oct. 14) 1931; Bacilluria Under Ketogenic Treatment: A Study of Fifty Cases, ibid. **7**: 257-260 (May 4) 1932; The Ketogenic Diet in the Treatment of Urinary Infections, J. Urol. **30**: 193-204 (Feb.) 1934. Clark, A. L., and Keltz, B. F.: A Simplified Treatment of Bacilluria, J. A. M. A. **104**: 289-291 (Jan. 26) 1935.

2. Newburgh, L. H., and MacKinnon, Frances: Practice of Dietetics, New York, Macmillan Company, 1934.

from exogenous sources. In a starvation regimen, in which the caloric requirements of metabolism are almost entirely dependent on the utilization of endogenous fat, one sees the most rapid and profound degrees of ketosis.

A diet containing 0.66⅔ Gm. of protein (normal adult requirement) and 0.33⅓ Gm. of carbohydrate per kilogram of body weight has been used as the basis for a diet in the treatment of some eighty patients at the University Hospital. Only a sufficient amount of fat to make the diet palatable is utilized. This diet is necessarily far below the energy requirement of the subject. It was palatable to every patient, no gastric upsets occurred, and ketosis developed as promptly as it did in those patients on the high fat regimen. Estimations of the metabolic mixture in all the cases in this series have shown the fatty acid-dextrose ratio to be between four to one and five to one, regardless of the amount of fat ingested.

TABLE 2.—*Classification of Fruits and Vegetables According to Carbohydrate Content* *

5% Vegetables	10% Vegetables
Asparagus	Beets
Bean sprouts	Brussels sprouts
Broccoli	Carrots
Cabbage	Dandelion greens
Cauliflower	Leeks
Celery	Olives, green
Chard	Onions
Chinese cabbage	Rutabagas
Cucumber	Winter squash
Egg plant	**10% Fruits**
Endive	Blackberries
Greens, beet	Cranberries
Greens, mustard	Currants
Kohlrabi	Gooseberries
Lettuce	Lime juice
Okra	Oranges
Peppers	Orange juice
Pumpkin	Peaches
Radish	Grapefruit
Spinach	Tangerines
String beans	
Summer squash	
Tomatoes	1 cup of 5% vegetables = ½ cup 10% vegetables
Turnips	
Watercress	
5% Fruits	
Honey dew melon	
Lemon juice	
Muskmelon	
Rubarb	
Strawberries	
Watermelon	

* We are indebted to Miss Frances MacKinnon, A.B., of the Department of Dietetics, for her aid in preparing these tables and the classification of fruits and vegetables.

The question regarding weight loss resulting from this low calory diet naturally arises. This seems unimportant, since practically all patients requiring treatment are of approximately normal weight or over. However, very little weight loss actually does occur during the short period of treatment and is of little consequence to the patient of normal weight and advantageous to the obese. The emaciated patient is not considered a suitable subject for any form of ketogenic therapy.

A large proportion of our cases are treated as inpatients and the diets for this group are individually calculated and prepared by the department of dietetics. These diets and the method of calculation are being presented in detail in another publication. A simple diet, low in calories and available dextrose, has been devised for our outpatients and is applicable to office practice. It is a standard diet and is ketogenic for patients weighing 115 pounds (52 Kg.) and over. Children's diets must be calculated on the basis of the caloric requirement of the individual.

Since ketosis is dependent on the inadequacy of available dextrose in the metabolic mixture and is not influenced by the amount of fat ingested, it would therefore follow that the administration of 40 per cent cream ad libitum to the ketogenic diet as advised by some authors could not result in an increase of ketonuria. The 40 Gm. of fat per hundred cubic centimeters which it contains will simply replace the endogenous fat that the patient would otherwise metabolize if on a low calory diet. If on a maintenance diet, the additional fat will be stored. The chief effect on the metabolic mixture will be the addition of the 6 Gm. of available dextrose that the cream contains and consequent lowering of the fatty acid-dextrose ratio. Qualitative and quantitative studies made on some of our patients have failed to reveal any increase in ketonuria following the ad libitum addition of 40 per cent cream to the prescribed diet.

Some patients fail to show ketonuria on the ketogenic diet. In some instances this has been attributed to inadequate exercise with a resultant insufficient total expenditure of energy. In this event the calculated dextrose deficiency of the diet, in fact, becomes adequate in the metabolic mixture. Every patient should therefore be encouraged to exercise, at least moderately, while on the diet. Aside from a lowered total expenditure of energy, failure to develop ketonuria must in nearly all instances be traceable to additional sources of exogenous dextrose. These sources of error are readily corrected.

It should be pointed out that determination of the hydrogen ion concentration must be made on freshly voided specimens. The urea splitting organisms present in these urines are capable of changing the reaction of the specimen within a very short time. It has been our practice to supply all of our patients with chlorphenol red paper indicators so that they can make their own p_H estimations at the time of each voiding.

Osterberg and Helmholz [3] have shown that such a test paper will turn from yellow to orange and red at a p_H of 5.5 or over. Since a p_H of 5.5 or lower is necessary in order for the ketone bodies in the urine to be bacteriostatic, it is only necessary that the urine shall not be capable of turning the test paper red. Ammonium chloride is administered orally only in those cases in which the desired acidity does not develop on the diet alone.

CONCLUSIONS

The conventional ketogenic diet, because it is also a maintenance diet, necessarily contains so much fat that it is intolerable to many patients.

Sufficient degrees of ketosis are obtainable by diets that are very low in fat, provided they are also low in calories.

In our series the desired ketosis has been produced without any of the untoward features of the high fat diet.

The ketogenic diet of low fat and low energy content is based on sound metabolic principles.

3. Osterberg, A. E., and Helmholz, H. F.: Determination Whether Ketonurine Has Bactericidal Action, J. A. M. A. **102**: 1831-1832 (June 2) 1934.

HEMOCHROMATOSIS

REPORT OF AN EARLY CASE

JOHN P. CREED, M.D.
HAVERHILL, MASS.

This case of hemochromatosis was discovered quite by accident during an abdominal operation. Later I made a survey of the literature and will attempt here to give a short summary of the established facts and the consensus of the theories of this disease.

The disease was first described in 1882 by Hanot and Chauffard and called bronze diabetes. They described the classic triad of cirrhosis, pigmentation of the skin, and diabetes. Von Recklinghausen in 1889 showed that the pigmentation of skin and viscera was due to a deposit of hemosiderin and hemofuchsin in the tissues. He called the disease hemochromatosis and, appropriate or not, this name has persisted down to the present time.

INCIDENCE

It is a rare disease. Only three cases occurred in 106,000 admissions to the Johns Hopkins Hospital and only four cases were found in 5,000 autopsies at the Bellevue Hospital. The only other case reported in Haverhill was that of a prominent local physician who died of the disease in 1924. From 1882 to 1909 there were only forty-two cases reported in the literature; down to 1925 there were eighty-four cases reported; to 1928, ninety cases, and to 1933, 200 cases. The age incidence is from 25 years up to any age but is most common in the fifth decade. Males are affected more often than females in the proportion of ten to one.

ETIOLOGY

There are two theories on the etiology of hemochromatosis: (1) disturbance of iron metabolism and (2) chronic copper poisoning (Mallory).

1. Iron is taken in the daily diet, in an amount of from 8 to 10 mg. daily, is absorbed in the duodenum and excreted through the large bowel and the kidneys, chiefly the large bowel, only from 1 to 1.5 mg. being excreted daily through the kidneys. Iron is stored in the normal liver and only a small trace is excreted in the bile. The body contains normally less than 5 Gm. of iron, more than half of which is in the hemoglobin. In hemochromatosis the body excretes some iron in the stools but none in the urine or bile. The iron accumulates in the body, which contains as high as 40 Gm. of iron, 30 Gm. of which is held in the liver, an amount more than 100 times greater than that in the normal liver.

2. Mallory has observed a number of cases of hemochromatosis in which he has shown that small amounts of copper have been the exciting cause. There is a mass of evidence to support this. Mallory and others produced hemochromatosis in animals by feeding them copper. These experiments have been confirmed by others, notably Hall and Butt, using rabbits, sheep and white rats. They found that alcohol, given with the copper, did not increase but retarded both the storage of copper and the development of pigment cirrhosis in rabbits and white rats. Further support of this theory lies in the fact that a high percentage of patients with hemochromatosis are those who are copper workers or who are alcohol addicts, whose supply comes from a source in which copper vessels, coils and the like are used.

PATHOLOGIC CHANGES

Hemofuchsin (iron-free pigment) derived from the hemoglobin is deposited in the endothelium of the liver sinusoids and in the smooth muscle fibers of the blood and lymph vessels and of the stomach and intestine. Hemosiderin (iron-containing pigment) is deposited chiefly in the liver cells, the pancreas and the lymph glands. The hemofuchsin is changed to hemosiderin in some way and, after saturating the liver, is deposited in other tissues, chiefly the pancreas, adrenal, thyroid, spleen, heart, skin, stomach and sometimes the brain. The mechanism is as follows: The iron ingested with the diet is retained in the body and is not excreted, owing to some failure of iron metabolism. There is no marked hemolysis of blood and no anemia in hemochromatosis, so that the accumulated iron probably comes from the food rather than directly from the blood. Copper undoubtedly contributes to this retention of iron, and alcohol probably also helps the process by damage to the liver cells. The iron is stored in the liver and causes direct injury and destruction of liver cells and consequent cirrhosis. Then the iron is stored in other organs, as already mentioned. Skin pigmentation is due to iron pigment deposited in the endothelium of the skin vessels and in the sweat glands. Diabetes is due to iron pigment infiltration of the pancreas and destruction of the islands of Langerhans. Addison's disease is due to iron pigment infiltration and destruction of the cortex of the adrenals. The sequence of events is first cirrhosis of the liver, later skin pigmentation, and still later diabetes. Addison's disease is also a late complication of hemochromatosis.

Therefore it is clear that the inability to excrete iron ingested in the food is the root of this condition, that copper is a definite exciting cause, and that alcohol may contribute to the process by hastening cirrhosis. The events following iron retention are clear: mechanical overloading of organs and tissues with iron pigment, causing destruction of liver cells and cirrhosis, pigmentation of the skin, diabetes, Addison's disease and so on. Mallory believes that it takes from fifteen to twenty years for hemochromatosis to develop, so that it is likely that this deficiency in metabolism may be present from birth or at least from early life.

SYMPTOMS

The symptoms are those of cirrhosis, which is the first manifestation of the disease. There is dyspepsia, pain in the right upper quadrant, and progressive weakness. There are signs of liver enlargement and later ascites. Pigmentation of the skin occurs late in the disease, and there may be hemorrhages from esophageal varices. Lastly, a severe progressive diabetes develops with thirst, loss of weight and frequently sudden coma, which is a common cause of death. Evidence of Addison's disease may be present, with an increase in the normal skin pigment (melanosis), profound weakness, low blood pressure, and other manifestations.

DIAGNOSIS

The diagnosis is made from the presence in combination of pigmentation of the skin, enlargement of the liver, and diabetes. In cases in which one or more of this triad is missing, diagnosis may be made by pathologic examination of the skin. The skin will show the presence of iron pigment by giving a prussian blue reaction with potassium ferrocyanide and dilute hydrochloric acid, and by giving a black reaction (hydrate

of iron reaction) when tested with ammonium sulphide. This test, when positive for iron, is conclusive evidence of the presence of hemochromatosis.

PROGNOSIS

The prognosis is uniformly bad. Patients seen early in the disease may live for years, until cirrhosis is well developed, and then death may occur from rupture of an esophageal varix. If this does not occur, diabetes will develop, and it is usually the chief factor in causing death; so much so in fact that it is said that death usually will occur one year after the first appearance of glycosuria.

TREATMENT

1. Prevention. Workers exposed to copper should be protected as far as possible. Copper cooking utensils should be avoided as well as copper parts of distilling apparatus.

2. Treatment of cirrhosis. Restriction of alcohol, suitable diet, drainage of the ascites, and diuretics such as merbaphen and salyrgan.

3. Diabetes. Diet and insulin, special care of the skin, treatment of diabetic coma, and other measures.

4. Addison's disease. Use of adrenal cortical extract and other therapy.

REPORT OF CASE

A man, aged 65, married, Italian, a pharmacist, was admitted to the Haverhill Municipal Hospital complaining of pain in the abdomen and vomiting of five days' duration. The diagnosis of the physician who sent the patient into the hospital was questionable intestinal obstruction. The present illness began five days before admission, with pain in the abdomen and vomiting. The pain was intermittent and cramplike in the right upper quadrant and radiated to the right scapula, and there was general soreness across the upper part of the abdomen. This continued for two days, at which time the patient was seen by a physician, and two enemas were given with good results. After the enemas were given the vomiting stopped but the pain persisted. Two days before admission the patient took an ounce (30 cc.) of castor oil, compound effervescing powder, and two caroid and bile tablets. All this increased the pain and he was brought into the hospital for treatment. One year before admission the patient had a similar attack of pain and vomiting, which cleared up in a few days without any treatment. Eighteen years before, the patient had an attack of nephritis lasting twenty-five days with apparent recovery.

On examination the patient was well developed and well nourished with a dark, sallow complexion. The pupils reacted to light and distance, the sclerae were white, and the mucous membranes were pale. The nose and throat were normal. All the teeth were missing except three lower carious teeth. The chest was asymmetrical, with the right side flat in front and a large prominence over the midpoint of the right side of the chest in back. There was a marked spinal curvature to the right in the dorsal region. The chest in general was barrel shaped. The breath sounds had prolonged expiration; there were no râles and no evidences of consolidation or fluid. The heart was normal and the extremities and reflexes were normal. The abdomen was soft, with tenderness in the right upper quadrant; the liver edge was palpable about two fingerbreadths below the costal margin.

Laboratory studies showed the urine negative for sugar, acetone and bile, and a trace of albumin at one examination but not at all subsequent examinations. Blood hemoglobin was 90 per cent, the red blood cell count was 4,510,000, and the white blood cell count was 13,300 with 76 per cent polymorphonuclear leukocytes, 23 per cent lymphocytes and 1 per cent large mononuclears. The blood smear was negative. The patient was given a series of enemas but still had attacks of colic, severe in character and intermittent; between attacks he was quite comfortable. Gallbladder studies were made with the dye and a roentgen examination disclosed pathologic changes of the gallbladder.

A right subcostal skin incision was made, the fascia was divided and the peritoneum was opened. There was no free fluid. The liver extended three fingerbreadths below the costal margin; the surface was smooth and dark, and was infiltrated with a network of light gray markings. There was a raised knob on the liver surface at the dome of the diaphragm the size of a walnut and of firm consistency. The gallbladder was a light gray, thin walled and emptied easily; the ducts were explored and found to be normal. The gallbladder was not disturbed. The appendix was adherent, retrocecal and chronically inflamed and was removed. The spleen was not enlarged, and the stomach, duodenum and pancreas were normal. A wedge-shaped piece of the liver was removed for pathologic examination. The wound was closed in layers with one cigaret drain through a stab wound in the right flank.

The patient stood the operation well and was given a low fat diet on the fourth postoperative day. The drain was removed on the sixth day and the sutures were removed on the thirteenth day. The pathologic diagnosis of the liver specimen was early cirrhosis with foci of necrosis suggesting hemochromatosis. Then a piece of skin was removed from the right leg, just above the external malleolus, and from this specimen a diagnosis of hemochromatosis was made.

After this diagnosis was made the past history was reviewed with the patient, and it was found that there was some exposure to alcohol and a questionable history of exposure to copper. The patient had been taking a glass of wine or two with his dinner every day for a number of years. Also, during a period of five months, he drank wine from a barrel with a copper petcock, which showed signs of corrosion from the wine.

COMMENT

The case described here is one of early hemochromatosis and has some unusual features. First of all, the patient was acutely ill on admission, sufficiently so to have a diagnosis of intestinal obstruction made. Then the cirrhosis was in an early stage before the development of ascites, there was no evidence of diabetes, and, lastly, there was no marked pigmentation of the skin, although there were some pigmented areas over the backs of the hands and over the tibias. These areas and the skin in general were not striking enough to be considered unusual in a man of his age (65).

The patient has been followed for almost four months since his discharge from the hospital. His digestion has been good and there is no evidence as yet of increased pigmentation of the skin, glycosuria or fluid in the peritoneal cavity. His condition will be followed further.

The existing literature on this subject has been reviewed and the essential points have been included and summarized as accurately as possible.

83 Emerson Street.

Pioneers in Embryology.—Aristotle (B. C. 384-322) gave an excellent account of the development of the chick of the second and succeeding days of incubation. William Harvey (1578-1667), using a simple magnifying glass, was able to give a much more detailed account of chick development (1651). Twenty years later Marcello Malpighi (1628-1694) published an account, with illustrations, relating to the developmental stages of the chick from the end of the first day of incubation to hatching. This account remains a model of keen observation and terse description. . . . Malpighi is generally designated as the founder of embryology. Modern embryology as a science dates from the time of von Baer (1792-1876), who discovered the human egg (1827) and gave the first clear account and interpretation of the significance of the germ layers. Von Baer is by common consent accredited as the "father of modern embryology." In recent years, except for data regarding the first three weeks, human embryology has been brought to the state of a relatively complete science.—Jordan, H. E., and Kindred, J. E.: A Textbook of Embryology, New York, D. Appleton & Company, 1926.

Clinical Notes, Suggestions and New Instruments

CHRONIC HEREDITARY HEMOLYTIC JAUNDICE

GLENN O. SMITH, M.D., PITTSBURGH

This case of chronic hereditary hemolytic jaundice is reported because the disease is relatively infrequent, because it presents many typical features, and because the hereditary aspect is represented by four generations.

H. M., a woman, aged 23, admitted to St. Francis Hospital, Dec. 1, 1934, complained chiefly of weakness, fulness of the left side of the abdomen, recurrent attacks of jaundice associated with abdominal pain, fever, nausea and vomiting. The first attack of jaundice occurred at the age of 10 weeks. Frequent menstruation had been present for about six months; it occurred every nine days and was of four or five days' duration. Ulcerations of the malleolar regions of both feet had been present as long as could be remembered.

The patient had had the acute exanthems of childhood and an appendectomy in October 1934.

The family history showed the interesting hereditary nature of this disease. The mother was living at the age of 54 and had had attacks of jaundice and an enlarged spleen for the past thirty-five years. The father was living and well at the age of 62. There were three sisters, aged 14, 20 and 26 years, all living. The one aged 14 was "always played out" and "always doctoring"; she was never jaundiced but had a pale, sallow complexion. Her spleen was never known to have been enlarged. The one aged 20 had an enlarged spleen and periodic attacks of jaundice. The one aged 26 was in good health. There were two brothers, aged 17 and 28 years, both living and well. On the maternal side there were three females who died of jaundice and an enlarged spleen, at 18, 24 and 45 years, respectively. One male, aged 35, was living and well. In the preceding generation on the maternal side the male member, whose age at death was unknown, was jaundiced and unable to work during the last twenty years of his life. In the preceding generation the male died at 90 years and the female died at 105 years. Granting that these advanced ages were correct, which seemed to be true when attempts were made to verify them, either the disease obviously was present in an extremely mild form or the affected individual had a so-called hemolytic constitution and escaped any manifestations of it throughout life. The defect, nevertheless, was transmitted to the offspring, and in the one known member the disease did definitely appear.

The accompanying illustration is an outline of the family history, representing the four generations.

In this family history there are represented many typical features of hereditary hemolytic jaundice. It is seen that the disease may exist in many forms, from a mild to an extremely severe degree; that its manifestations may not be typical; that it may have no manifestations throughout life and yet may be transmitted to succeeding generations, and that it may be transmitted by either sex to either sex.

The patient was well developed and well nourished. Pallor was prominent. The sclerae were slightly icteric. Jaundice was not evident in the skin. There were no osseous changes, such as "tower skull" or pseudo-atrophy of the bones of the forearms and hands. The spleen was enlarged and extended to almost the level of the umbilicus and to about the midabdominal line. About the malleolar regions of both feet were irregular circumscribed ulcerations, not of great depth, giving the skin the appearance of having been rather superficially denuded. The ulcers bled easily when traumatized.

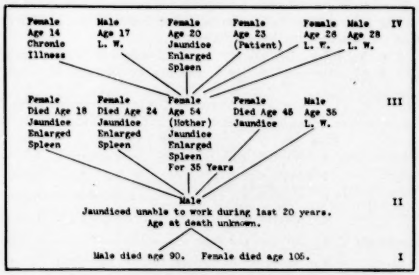
Laboratory examination showed: erythrocytes, 2,400,000; leukocytes, 10,000; hemoglobin, 42 per cent. The differential count was normal. The red blood cells showed anisocytosis and a diffuse microcytosis. The fragility test of the red blood cells to hypotonic salt solution gave an initial hemolysis at 0.74 per cent and complete hemolysis at 0.44 per cent, the normal being from 0.44 per cent to 0.34 per cent. The reticulocytes were 18 per cent. The blood platelets were reduced. The bleeding time was 13½ minutes and the coagulation time 8 minutes. The icterus index was 16, being about the point at which clinical jaundice occurs. The van den Bergh test gave a positive indirect reaction. The blood Wassermann and Kahn tests were negative. The Ewald fractional gastric analysis showed the presence of free hydrochloric acid in all specimens. The urobilinogen test was negative. The blood chemistry was normal.

Treatment consisted of splenectomy, which was done by Dr. Robert M. Entwisle, December 18. Two blood transfusions were given before operation; a third transfusion was given at completion of the operation.

At operation, the spleen was found enlarged about ten times the normal size; it was removed without difficulty and contained 800 cc. of blood. The abdominal adipose tissue and viscera were icteric. The liver was not enlarged and appeared normal in every respect. There was a moderate sized stone in the gallbladder. The uterus and adnexa appeared to be normal.

The patient made an uneventful recovery and was discharged from the hospital, Jan. 3, 1935.

The following changes were observed just prior to discharge: The ulcerations over the malleolar regions were almost completely healed. There had been no menstruation since operation, in contrast to the frequent periods of every nine days. Erythrocytes were 3,800,000; hemoglobin, 75 per cent. The microcytosis and fragility of the red blood cells were unchanged. The icterus index was 8. The coagulation time was 6½ minutes, and the bleeding time was 3 minutes.


Female Age 14 Chronic Illness
Male Age 17 L. W.
Female Age 20 Jaundice Enlarged Spleen
Female Age 23 (Patient)
Female Age 26 L. W.
Male Age 28 L. W.
IV
Female Died Age 18 Jaundice Enlarged Spleen
Female Died Age 24 Jaundice Enlarged Spleen
Female Age 54 (Mother) Jaundice Enlarged Spleen For 35 Years
Female Died Age 45 Jaundice
Male Age 35 L. W.
III
Male
II
Jaundiced unable to work during last 20 years. Age at death unknown.
Male died age 90. Female died age 105.
I

Outline of family history, I, II, III and IV representing generations. L. W. signifies living and well.

January 18, one month after operation, there was a return of menstruation, the first since operation. The malleolar ulcerations were completely healed. Erythrocytes were 4,100,000; hemoglobin was 90 per cent. Microcytosis and increased fragility of the red blood cells remained the same.

This case represented a typical form of chronic hereditary hemolytic jaundice; it showed malleolar ulcerations and cholelithiasis—two complications of this disease—and lacked only the osseous changes to demonstrate completely all features.

Treatment by splenectomy gave a satisfactory result.

An interesting possible explanation of the mechanism of this disease has been proposed by Haden.[1] He believed that the spherical form of the microcyte was the abnormality that produced the resultant changes in this disease. He pointed out that in some lower animals a spherical red cell was a constant type; also, that the hemolysis of their red cells was increased and that normal human erythrocytes become spherical before hemolyzing and believed that the spherical form of the microcyte was a possible explanation for the increased fragility.

The spleen completes the rest of the picture. This organ enlarges in an attempt to increase its phagocytic function in destroying the abnormal spherical microcyte. The liberated bilirubin, from destruction of the microcytes, is carried to the liver in greater amounts than that organ can excrete; hence the resultant jaundice and frequent complication of gallbadder disease. The destruction of the red blood cells produces the anemia. The reticulocytosis is evidence of increased bone marrow activity in an attempt to compensate for the reduced

1. Haden, R. L.: Am. J. M. Sc. **188**: 441 (Oct.) 1934.

erythrocytes. The spleen is not the cause of the disease, but, as has been stated by Hellstrom,[2] it is only the organ that transforms into a disease what was formerly only an abnormality. Splenectomy cannot remove this inherited abnormality, the faulty formation of red blood corpuscles, and this persists subsequently, as proved by blood examinations. If the spleen is removed, inferior red blood cells have lost their destroyer.

415 Highland Building.

HEMATOGENOUS OSTEOMYELITIS AND PYARTHROSIS DUE TO SALMONELLA SUIPESTIFER

JAMES B. WEAVER, M.D., AND LORAINE SHERWOOD, M.D.
KANSAS CITY, MO.

Salmonella suipestifer, or the "hog cholera" bacillus, is usually found in association with the virus of hog cholera but has also been isolated from cattle, sheep and rodents. For several years after its identification it was considered to be nonpathogenic to man, but since 1918 numerous epidemics of gastro-enteritis have been reported in which this organism was ingested with food and was recovered from the stools of the afflicted individuals.

Gouley and Israel[1] have recently reported thirty-five instances of bacteremia in man due to Bacillus suipestifer, which included thirty-four cases found in a review of the literature and one of their own. The disease, for the most part, was evidenced as a bronchopneumonia or simulated typhoid or influenza. Since only one patient in this series was reported as having a bone or joint involvement, we feel that the following case of osteomyelitis is of interest:

A white baby girl, aged 9 months, weighing 16½ pounds (7.5 Kg.), admitted to the University of Kansas Hospital, Jan. 18, 1935, had a swollen and painful right knee of one week's duration and of unknown cause. The birth weight of the child was 9¾ pounds (4,423 Gm.). She was breast fed for one week but subsequently was on a diet of straight raw cow's milk from the family's privately owned cow. Karo syrup was occasionally added to the milk, but cod liver oil and fruit juices were not given. In July and August, when the baby was from 3 to 4 months of age, she had diarrhea and some vomiting. The other members of the large family were apparently healthy, though living under very insanitary and squalid conditions.

The admission temperature was 100.6 F. but rose to 103.6 F. a few hours later. The child did not appear to be acutely ill and positive physical changes were limited to the right knee, which was swollen and held in an attitude of flexion and external rotation. There was no hydrops of the knee joint but there was an area of induration over the internal condyle of the femur, which was apparently very tender to pressure.

Laboratory examinations revealed red blood cells, 4,160,000; white blood cells, 22,500 with 33 per cent polymorphonuclear cells and 63 per cent lymphocytes; hemoglobin, 60 per cent. The Wassermann and Kahn tests were negative.

The roentgenologist reported marked swelling of the soft tissues of the knee. The epiphyseal line of the lower end of the femur was ragged and showed a little spurring at the internal surface. The periosteum in this area was slightly raised. The diagnosis was probable osteomyelitis.

At operation, January 19, the periosteum just above the lower epiphyseal line and on the inner aspect of the femur was found to be ruptured, and a small quantity of thick yellow pus was present. The underlying bone was necrotic and a drill was easily pushed into the medullary canal. Drainage was established, the wound packed lightly with petrolatum gauze, and a plaster-of-paris bandage applied after the method of Orr.

The postoperative course was uneventful until February 8, when there was a moderate rise in temperature, and a localized area of edema was noticed just below the tibial tubercle of the left leg. This area was incised, February 12, and about 10 cc. of pus was obtained. The adjacent bone was not involved, so we were dealing with a soft tissue abscess in this instance. From this point progress was uneventful and the baby was discharged, March 10, weighing 18 pounds 3 ounces (8.3 Kg.) and with both wounds entirely healed, the first one closing some time after the second.

The same organism, a very short gram-negative bacillus, was isolated in pure culture from the pus procured at operation, from each disease process. Brucella melitensis was early suspected but quickly disproved by serologic tests. Negative agglutination reactions were obtained also with Bacillus typhosus, B. paratyphosus A and B, and Bacterium tularense, as well as with the patient's serum. Cultural tests in our laboratories placed the organism within the food poisoning group and a culture was sent to the National Institute of Health, United States Public Health Service, Washington, D. C. The director, Dr. G. W. McCoy, reported as follows: "The organism received from you has been identified culturally and serologically as Salmonella suipestifer." Repeated blood cultures were negative.

In addition to the foregoing case we have found reports of eight others of pathologic changes of the bones or joints, comprising three of osteomyelitis and five of pyarthrosis. The entire series is listed in the accompanying table. We do not include two instances of pyarthrosis due to B. paratyphosus B reported by Dijkstra and Van der Hoeden,[2] though these are classified by some authors under suipestifer infection. We found no reason to doubt the original authors. The case of Naborro and White,[3] though listed by them as an arthritis, is considered by us to be osteomyelitis, as their description of the roentgen picture is so typical of the latter that one can arrive at no other conclusion.

The close similarity of the cases in this collection is striking. The disease was mild in character, recovery under conservative treatment being the rule, with no deaths reported. In the cases of osteomyelitis, the primary focus of infection was without

Reported Cases of Bone and Joint Infection Due to Salmonella Suipestifer

	Case	Author	Age	Part Involved	Treatment	Result
Osteomyelitis	1	Naborro and White[3]	8 mos.	Upper end of each humerus with extension into shoulder joint	Not stated	Recovery ?
	2	Kuttner, Ann G., and Zepp, H. D.: J. A. M. A. **101**: 269 (July 22) 1933	5 wks.	Upper end of humerus with extension into shoulder joint	Immobilization	Improved
	3	Gajzágó, D., and Göttche, O.: Orvosi hetil. **78**: 893 (Sept. 29) 1934	8 mos.	Upper end of humerus	Immobilization	Recovery
	4	Weaver and Sherwood	9 mos.	Lower end of femur	Operation	Recovery
Pyarthrosis	1	Kuttner and Zepp	19 mos.	Knee joint	Repeated aspiration and traction	Recovery
	2	Bosch, W. J.: Geneesk. tijdschr. v. Nederl.-Indië. **69**: 42 (Jan. 21) 1929	11 mos.	Knee joint		
	3	Creveld and Ruys[4]	5 mos.	Knee joint	Aspiration and traction	Recovery
	4	Bruin and Janssen[4]	13 mos.	Knee joint	Aspiration and symptomatic treatment	Recovery
	5	Tevell[4a]	15 mos.	Shoulder joint	Aspiration and autogenous vaccine	Recovery

2. Hellstrom, N., quoted by Cheney, W. F., and Cheney, Garnett: Am. J. M. Sc. **187**: 191 (Feb.) 1934.

From the Departments of Orthopedic Surgery and Bacteriology of the University of Kansas Medical School.

1. Gouley, B. A., and Israel, S. D.: Salmonella Suipestifer Bacteremia with Acute Endocarditis, Arch. Int. Med. **53**: 699 (May) 1934.

2. Dijkstra, O. H., and Van der Hoeden, J.: Paratyphoid B Epidemic Probably Caused by Cow, Nederl. tijdschr. v. geneesk. **1**: 1458 (March 23) 1929.

3. Naborro, D.; White, P. B.; Duke, S. C., and Scott, W. M.: Two Cases of Human Infection by American Hog Cholera Bacillus, Lancet **2**: 868 (Oct. 26) 1929.

exception in the epiphyseal line, usually with direct extension into the joint; in reality, examples of acute epiphysitis. Agglutination tests were positive in all cases, frequently for several months after alleviation of symptoms. There were no positive blood cultures. The differential white blood cell counts usually showed a preponderance of lymphocytes. The most arresting feature, however, was the age incidence; with the oldest age recorded as 19 months and the youngest as 5 weeks.

In contrast to our series is that of the other type of suipestifer bacteremia compiled by Gouley and Israel,[1] in which twenty-one out of the thirty-five cases were in adults, with a mortality rate in this class of over 50 per cent. Positive blood cultures were frequently obtained.

Complications of bone or joint infection have been infrequent. Creveld and Ruys[4] reported lymphadenitis occurring with their case of pyarthrosis, while a soft tissue abscess was a complication in our case of osteomyelitis. However, bone or joint involvement has been preceded in several instances by other manifestations of suipestifer infection; namely, bronchopneumonia in the cases of Teveli[5] and of Bruin and Janssen,[6] and bronchopneumonia and otitis media in the case of Creveld and Ruys.[4]

The source of infection has not been determined in any of the cases in this series. Since all these patients were infants at the time of infection, the milk supply is naturally suspected. Force is lent to this suspicion by the fact that Stewart and Litterer[7] have reported an epidemic of gastro-enteritis which was proved to be of milk-borne suipestifer etiology. In our case, the cow from which the milk was obtained was not healthy and a veterinarian is authority for the statement that it was infected by the bacillus of malta fever. Unfortunately, the animal was disposed of shortly before the entrance of the child into the hospital.

CONCLUSION

Hematogenous osteomyelitis and pyarthrosis due to Salmonella suipestifer apparently occur only in infants. The disease is mild in character and the milk supply is suggested as the possible source of infection. In bone lesions the primary focus is in the epiphyseal line and extends toward the joint (epiphysitis). The organism is recovered from the local lesion, seldom from blood cultures. Agglutination tests are positive.

531 Argyle Building.

DERMATITIS OF THE PENIS FROM RUBBER

HERBERT RATTNER, M.D., CHICAGO

A dentist, aged 34, married, was troubled with an annoying eczema of the penis. His past history was of little importance; neither he nor any members of his family suffered from allergic disease. He had been under treatment for seven months for attacks of balanitis and nonspecific urethritis, which had recurred at frequent intervals. When finally there developed a persistent, itchy dermatitis, he was referred for dermatologic care. There was a patch of moist erythematous dermatitis of the skin just proximal to the glans. This had been present for three weeks, and it itched intensely. In addition there were a few scattered lesions elsewhere on the shaft and on the glans, of lesser severity. The clinical picture was that of simple dermatitis—the patches were ill defined and in various stages of development, and there were none of the typical morphologic changes found in the various dermatoses that sometimes affect the site. It had the characteristics of an "irritant dermatitis." The history pointed to rubber condoms as the source of the irritation. The first attack of balanitis had occurred after sexual intercourse with the use of a rubber condom, one from a new supply just recently purchased, and after each such experience there was a recurrence of intense edema of the penis accompanied by urethritis. All other sources of irritation could apparently be eliminated. To confirm the impression, a patch test was performed. A piece of the rubber, moistened, was strapped to the inner surface of the patient's arm, and within twenty-four hours there developed a patch of vesicular dermatitis similar to that on the penis. The eruption quickly subsided with the application of a soothing ointment, and when about three weeks later, still incredulous at the simple explanation for his months of trouble, the patient of his own accord gave himself a clinical test, there was a prompt recurrence of edema, urethritis and dermatitis, indicating rather definitely that the rubber was the exciting factor. Subsequently he was able to prove it conclusively.

Obermayer[1] has reported a similar case and has written very fully on the subject of sensitization to rubber. As he has pointed out, dermatitis produced by contact with chemicals used in the manufacture of rubber products has been recognized for many years, but eruptions due to ready made, so-called cold cured rubber goods must be exceedingly rare. His patient was a physician who subsequently developed dermatitis of the hands from rubber gloves. After a painstaking study of the chemistry of the manufacture of rubber, Obermayer found the irritant factor to be a compound that could be rendered nonirritant by treatment with alkali. This was suggested to my patient, who reported that he too was able to render the rubber nonirritant by treating it with a 5 per cent solution of sodium hydroxide.

My case illustrates and emphasizes, along with Obermayer's, that in dermatitis of the penis the possibility of its production by rubber condoms must be recognized. The main point, however, is that along with this there was a condition which a competent urologist recognized as nonspecific urethritis, which was due to the same cause.

7 West Madison Street.

UNUSUAL CASE OF LOW CALCIUM TETANY WITHOUT CONVULSIONS IN A NEW-BORN INFANT

JACOB L. ROTHSTEIN, M.D., NEW YORK

Cases of tetany in the new-born with a low blood calcium concentration have been reported in the literature with increasing frequency during the past few years. In two recent papers I[1] reviewed the literature and described one case in each report.

REPORT OF CASE

Baby G., a seven and a half months premature female infant, weighing 5 pounds (2,268 Gm.), was delivered without the application of forceps by Dr. Julius Kurzrock at the Sydenham Hospital. During the first thirty-six hours of life, projectile vomiting of all feedings occurred and a constant temperature of 101 F. was noted. No twitches or convulsions were observed. Physical examination revealed the presence of a positive Chvostek sign, a normal Moro phenomenon, and a brawny, sclerema-like edema localized to the vulva, the perineum and the lateral aspects of both thighs. Examination of the heart and lungs was negative. The fontanel was not tense, and no abnormal neurologic signs were noted. Neither carpopedal spasm nor laryngospasm was present. The infant groaned and cried intermittently, drawing its thighs up onto the abdomen as though in pain.

In view of the evidences of marked gastro-enterospasm (projectile vomiting and colicky cry), the positive Chvostek phenomenon and the unusual type of localized edema, a diagnosis of tetany of the new-born was made. Blood was taken for analysis and 10 cc. of a 10 per cent solution of calcium gluconate (1 Gm.) was immediately given intravenously. The blood calcium concentration was 7.0 mg. per hundred cubic centimeters of serum. (The phosphorus concentration was not obtained, owing to an insufficiency of serum.) Electrical reactions were not determined because of the difficulty in carrying out the test in a new-born infant. Roentgen examination of the long bones did not reveal any evidences of congenital rickets. Urinalysis was completely negative.

Intensive intravenous, intramuscular and oral calcium gluconate therapy was given. A daily dose of 1 Gm. of the calcium

4. Creveld, van S., and Ruys, A. Charlotte: Salmonella suipestifer Infection bei einem Säugling, Ztschr. f. Kinderh. **54**: 725, 1933.
5. Teveli, Z.: Suipestifer bacillus okozta izületé gyulladas gyermeken, Orvosi hetil. **78**: 927 (Oct. 6) 1934.
6. Bruin, A. D., and Janssen, E.: Hydrops Genu na Salmonella Suipestifer Infectie bij een klein Meisje, Maandschr. v. kindergeneesk. **2**: 553 (Aug.) 1933.
7. Stewart, H. C., and Litterer, William: Outbreak of Gastro-Enteritis, Milk-Borne Epidemic of Dyersbury, Tennessee, Caused by Salmonella Suipestifer, J. A. M. A. **87**: 1584 (Nov. 5) 1927.

1. Obermayer, M. E.: Eczema Due to Hypersensitiveness to Rubber, Arch. Dermat. & Syph. **17**: 25 (Jan.) 1933.
1. Rothstein, J. L.: (*a*) Low Calcium Tetany in the New-Born, J. Pediat. **5**: 341-351 (Sept.) 1934; (*b*) ibid. **6**: 644 (May) 1935.

gluconate was injected intravenously for a period of ten days. A similar dose of the calcium gluconate was given intramuscularly on each of the first three days. Vitamin D in the form of viosterol was given by mouth to favor better absorption of the calcium from the intestinal tract. Feedings of breast milk were given by gavage. The temperature dropped promptly. The vomiting lessened and finally ceased within thirty-six hours after the beginning of the intravenous therapy. The subcutaneous edema decreased and disappeared within forty-eight hours of the institution of treatment. The positive Chvostek sign was present, though diminished, for the next five days.

Jaundice appeared on the third day of life and lasted until the seventh day. This was considered to be a physiologic icterus of the new-born.

After ten days of calcium gluconate therapy (on the twelfth day of life) the blood calcium concentration was 9.3 mg. per hundred cubic centimeters of serum. The phosphorus concentration was 4.5 mg. per hundred cubic centimeters of serum. The intravenous calcium gluconate therapy was discontinued, but viosterol and calcium gluconate were administered by mouth. The infant was discharged from the hospital at the age of 1 month weighing 6 pounds (2,722 Gm.), having gained 1 pound (453.6 Gm.) over its birth weight. Oral calcium gluconate and viosterol medication were continued at home for several weeks in order to prevent the possible recurrence of symptoms, such as has been reported by Powers [2] in his case.

COMMENT

This is the first instance of low calcium tetany in the new-born to be reported in which muscular twitchings or convulsions were completely absent. It is likely that, had the condition not been recognized so early and had treatment not been instituted so promptly (thirty-six hours after birth), convulsions or twitches might have appeared subsequently. In the absence of twitches or convulsions, tetany would ordinarily not even be suspected, but in this case two factors were suggestive: (1) evidences of marked gastro-enterospasm (the projectile vomiting, described by Bass and Karelitz,[3] and the apparently painful, colicky cry), and (2) the peculiar type of subcutaneous edema (described by Shannon [4]). The presumptive diagnosis of tetany was proved by the finding of a lowered blood calcium content of 7.0 mg. per hundred cubic centimeters of serum. Despite the absence of twitching and convulsions, the presence of the evidences of gastro-enterospasm (projectile vomiting and colicky cry) and of subcutaneous edema causes this case to serve as a connecting link between the type of low calcium tetany with vomiting due to cardiospasm reported by Bass and Karelitz and the type with subcutaneous edema described by Shannon.

In previous reports I [5] have shown that, whereas the symptom complex of low calcium tetany presented in the new-born may consist of any combination of certain symptoms and signs (hyperpyrexia, vomiting, muscular twitchings, convulsions, a positive Chvostek phenomenon, laryngospasm, carpopedal spasm, and subcutaneous edema), the symptoms and signs usually considered as most suggestive of tetany may be absent. In Craig's [6] case and in my second case,[1b] neither laryngospasm nor carpopedal spasm was observed even at the height of the convulsions when the calcium content of the blood was definitely lowered. The absence of carpopedal spasm, laryngospasm, convulsions and twitchings does not necessarily militate against the presence of an active tetany, as has been seen in the case reported herein. Furthermore, although a positive Chvostek phenomenon is an important finding in the tetany syndrome of older infants, it is of very little significance in the new-born, for it may be present in normal new-born infants with normal blood calcium concentrations [7] and it may be absent in proved cases of tetany (as in Small's case [8] with a blood calcium content of 5.6 mg.). Consequently, in the case reported here the only clues to the diagnosis that led to a blood calcium determination were the vomiting and the subcutaneous edema.

1085 Park Avenue.

2. Powers, G. F.: Tetany as a Cause of Convulsions in Very Young Infants, J. A. M. A. **84**: 1907-1908 (June 20) 1925.
3. Bass, M. H., and Karelitz, Samuel: Tetany Accompanied by Hyperpyrexia and Vomiting in the First Days of Life, J. A. M. A. **97**: 1372-1375 (Nov. 7) 1931.
4. Shannon, W. R.: Tetany, Generalized Edema and Central Compression in the New-Born, Arch. Pediat. **48**: 153-173 (March) 1931.
5. Rothstein,[1b] Hellman, A. M., and Rothstein, J. L.: Tetany of the New-Born as a Problem for the Obstetrician, Am. J. Obst. & Gynec. **29**: 686 (May) 1935.
6. Craig, J. D.: Tetany of the New-Born: Case Report, J. Pediat. **4**: 219-220 (Feb.) 1934.
7. Stevenson, F. E.; Mitchell, A. G., and Koch, C. A.: Chvostek's Facialis Sign in New-Born Infants, Am. J. Dis. Child. **34**: 425-428 (Sept.) 1927.
8. Small, A. S.: Tetany in Young Infants, J. Pediat. **2**: 681-684 (June) 1933.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

McINTOSH MOBILE DIATHERMY UNIT ACCEPTABLE

Manufacturer: McIntosh Electrical Corporation, Chicago.

This diathermy machine is of the spark gap type and is recommended for medical and surgical diathermy as practical in both physicians' offices and hospitals.

The McIntosh Mobile Diathermy Unit (fig. 1) appears to be well constructed. The power condensers are made of mica and soft copper plates, rigidly clamped together between two metal plates. The spark gap assembly consists of six individual gaps connected in series, and the points are made of tungsten.

Fig. 1.—McIntosh Mobile Diathermy Unit.

Outlets are provided for medical diathermy current, Oudin current, and coagulating, desiccating and cutting currents. (Fig. 2 is a schematic diagram of the circuit.)

The height of the cabinet over all is 42 inches, width 21 inches, depth 15 inches, and the shipping weight is 200 pounds. A current strength of 900 milliamperes may be obtained.

At the request of the Council, the manufacturer submitted data pertaining to the mechanical and electrical construction of the unit. Among other data the firm reported that when the unit was connected to a load having a resistance of 25 ohms the input power was 620 watts, and the high frequency energy output was 518 watts. After a period of two hours operating at this load, the temperature of the transformer was 72 C. and of the spark gap 88 C. The frequency of this unit is approximately 1,250,000 cycles per second. The Council's investigator confirmed these data.

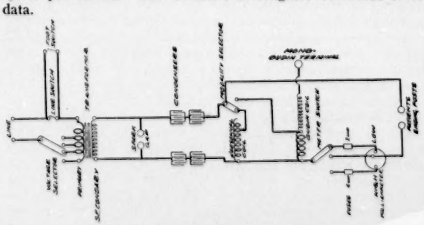


Fig. 2.—Schematic diagram of circuit.

The McIntosh Mobile Diathermy Unit was used in a clinic acceptable to the Council for almost a year and during that time it was tried out under various conditions. The investigator reports that it gave satisfactory service.

In view of the foregoing favorable report, the Council on Physical Therapy voted to accept the McIntosh Mobile Diathermy Unit for inclusion in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

PLY #1, PLY #2 AND PLY #3 NOT ACCEPTABLE FOR N. N. R.

Under the names Ply #1, Ply #2 and Ply #3, the Milburn Co. of Detroit presented for the Council's consideration three preparations designed for use as protective coatings for the hands. The products are intended for use by workmen exposed industrially to the hazards of dermatitis. In composition these are unnecessarily complex, Ply #1 containing eleven ingredients, Ply #2 containing twelve ingredients and Ply #3 containing five ingredients:

Ply #1 is stated to contain:

10	%	Zinc Stearate U. S. P.
15	%	Aluminum Subacetate Solution N. F. (7½-8%)
3	%	Gum Camphor U. S. P. IX
1	%	Menthol Crystals U. S. P.
½	%	Acid Carbolic U. S. P.
½	%	Glycerin U. S. P.
½	%	Lanolin Anhydrous
4½	%	Gum Tragacanth
18	%	Soap (Low Alkali Content)
½	%	White Rose Oil Technical
½	%	Triethanolamine $N(C_2H_4OH)_3$
46	%	Moisture

Ply #2 is stated to contain:

10	%	Zinc Stearate U. S. P.
15	%	Aluminum Subacetate Solution N. F. (7½-8%)
3	%	Gum Camphor U. S. P. IX
1	%	Menthol Crystals U. S. P.
½	%	Acid Carbolic U. S. P.
½	%	Glycerin U. S. P.
½	%	Lanolin Anhydrous
4½	%	Gum Tragacanth
18	%	Soap (Low Alkali Content)
½	%	White Rose Oil Technical
½	%	Triethanolamine $N(C_2H_4OH)_3$
44¼	%	Moisture
2	%	Sulpho Ammonium Ichthyolate

Ply #3 is stated to contain:

35	%	White Rose Technical Oil
55	%	Paraffin Wax
2	%	Ammonium Sulpho-Ichthyolate
1	%	Stearic Acid U. S. P.
½	%	Triethanolamine $N(C_2H_4OH)_3$
7½	%	Moisture

The firm stated that the names are "temporary" and "subject to suggestions and revisions if necessary." These names are, of course, noninformative and violate the Council's rules with regard to the use of numbers in names. In view of the multitudinous ingredients, it is difficult to see how a properly informative name could be devised. The firm presented no evidence to establish the prophylactic claims made for the products. No therapeutic claims are advanced.

In the course of the Council's consideration, it developed that the Milburn Co. markets a therapeutic package under the name "Milburn D. P. E. Kit" (Dermatological Prophylactic Emergency Kit). The firm was asked for information concerning this kit and for any advertising material connected with it. In addition, the firm was asked the connection between the products that have been submitted to the Council and the products in the emergency kit. From the information furnished by the firm, it appears that the kit contains the following products: Ply #7, Ply #4, Ply #5, Ply #6, Ply #19, Ply #10, Plydermax, Plyothol Ointment, Plyothol (Greaseless) and Ply Dusting Powder. In the booklet (which the firm submitted) concerning the kit, these products are listed together with their formulas. The formulas represent the same complexity as was found in the prophylactic forms submitted; they are also similarly objectionable as to name.

In the submitted booklet and in a form letter, not submitted by the firm but available to the Council, wide and unsupported therapeutic claims were made for the products. The Council found that the "Milburn D. P. E. Kit" violates its rules in the following respects: indirect advertising and suggestions of self medication, unwarranted therapeutic and prophylactic claims, use of uninformative, numbered names, and unnecessarily complex composition.

On account of the similarity of the names, the Council held that the marketing of the D. P. E. Kit makes an additional objection to the submitted prophylactic preparations because the one would advertise the other directly or indirectly.

The Council declared Ply #1, Ply #2 and Ply #3 unacceptable for New and Nonofficial Remedies because no evidence was submitted to support the prophylactic claims, because they are unnecessarily complex in composition, because the names are uninformative and involve the use of numbers, and because of their connection with the unacceptable "D. P. E. Kit."

The foregoing statement of the Council's consideration was sent to the Milburn Company for comment before publication. The firm's reply did not meet the objections which the Council had found to these products. The firm was so informed. No reply having been received, a further communication was sent by registered mail; to this also no reply was received. The stipulated period having elapsed without receipt of a communication from the Milburn Company, the Council authorized publication of this report.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

AZOCHLORAMID (See THE JOURNAL, July 20, 1935, p. 200).

The following dosage form has been accepted:

Azochloramid in Triacetin 1:500: A solution containing azochloramid 1 Gm. in 500 Gm. of triacetin (triacetin, a mixture containing approximately 95 per cent glyceryl triacetate, $CH_3OOCCH_3 \cdot CHOOCCH_3 \cdot CH_2OOCCH_3$.

The triacetin used in Azochloramid in Triacetin 1:500 complies with the following tests and standards:

Triacetin is a colorless, somewhat oily liquid with a slight fatty odor and a bitter taste. It is miscible with alcohol, ether, chloroform and benzene; soluble in water; insoluble in carbon disulphide and ligroin. The specific gravity is from 1.154 to 1.158 at 25 C. The refractive index is 1.4295-1.4310 at 25 C.

Transfer 25 cc. of triacetin to a distillation flask. Determine the distillation range according to method I of the U. S. P. X. Ninety-five per cent distils over at from 258 to 259 (corrected) at 760 mm.

The saponification value as determined by the method of the U. S. P. X, page 457, on 0.5 to 0.6 Gm. of triacetin, accurately weighed, is not less than 762 nor more than 772.

Dilute 0.4 cc. of bromcresol green indicator solution (0.04 per cent of monosodium salt according to Clark and Lubbs) to 30 cc. Transfer 15 cc. of this solution to 5 cc. of triacetin in a separatory funnel and agitate vigorously for two minutes: the color of the clear aqueous extract (centrifuge if necessary) shows no appreciable change from that of the original solution at the end of fifteen minutes.

Reflux a mixture of 150 cc. of triacetin and 100 cc. of dry toluene for one hour in a glass apparatus for the determination of water as described in the Proceedings of the American Society for Testing Materials, A. S. T. M. Designation: D 95-30. Not more than 0.5 cc. of water collects in the graduated trap.

PROCAINE-ABBOTT (See New and Nonofficial Remedies, 1935, p. 63).

The following dosage forms have been accepted:

Procaine Hydrochloride-Abbott Tablets, 1.14 grains (0.07 Gm.): One tablet dissolved in 1 fluidrachm of distilled water makes a 2 per cent solution of procaine hydrochloride.

Procaine Hydrochloride-Abbott Tablets, 2.28 grains (0.15 Gm.): One tablet dissolved in 2 fluidrachms of distilled water makes a 2 per cent solution of procaine hydrochloride.

SALVARSAN (See New and Nonofficial Remedies, 1935, p. 75).

The following dosage form has been accepted:

Salvarsan, 1.2 Gm. Tubes.

VIOSTEROL IN OIL (See New and Nonofficial Remedies, 1935, p. 436).

Viosterol in Oil-Merrell, Sperti Process.—A brand of viosterol in oil-N. N. R.

Manufactured by William S. Merrell Company, Cincinnati, under U. S. Patent 1,676,579 (July 10, 1928; expires 1945), by license of the General Development Laboratories, Inc.

Viosterol in oil-Merrell, Sperti process, is prepared by irradiation of a solution of ergosterol by ultraviolet rays of predetermined or selected wavelengths, waves shorter than 2,753 angstroms being removed. After irradiation the solution is refined to remove the majority of unchanged ergosterol, the solvent is distilled off at a low temperature in an inert atmosphere, and the irradiated ergosterol is taken up in a known weight of vegetable oil. The resulting concentrate is adjusted by admixture of a bland vegetable oil so that the final product when assayed according to the U. S. P. X (Revised 1934) method has not less than the vitamin D potency of viosterol in oil-N. N. R.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 12, 1935

INORGANIC ELEMENTS IN THE SKIN

The determination of the identity, amount and distribution of inorganic elements in the skin may frequently become of importance for both physiologic and pathologic reasons. The amounts of certain salts in a tissue are known to exert a profound effect on its physiologic behavior; an increase in potassium, for example, is associated with an increase in irritability, whereas an increase in calcium is accompanied by a diminished irritability. Also, the skin is an important depot for certain salts, particularly chlorides, and it may contain significant amounts of certain toxic metals, such as silver, gold, lead and nickel.

A number of ingenious procedures for studying the inorganic elements of the skin have been developed or improved during the past few years as a result of a wave of interest in this branch of histochemistry. In one procedure, the kind and distribution of inorganic material are determined by carefully preparing thin slices of epidermis and of cutis from frozen specimens of skin by the use of the microtome. A number of such slices may then be analyzed for their inorganic content by standard microchemical procedures. Analyses of this type[1] have demonstrated that there is a greater concentration of potassium and of calcium in the epidermis than in the cutis. This procedure, however, yields no information regarding the distribution of the inorganic elements between the cells comprising the several layers of the skin. Such information may be obtained by the micro-incineration of thin slices of skin directly on microscope slides and by studying the pattern of the residual ash. In this way it has been shown that there is a much greater concentration of minerals in the cells of the epidermis than in those of the cutis. The residue of the elastic and collagenic fibers of the cutis shows little structural detail but is simply a network of scattered fragments of whitish ash. Glandular structures in the cutis, such as the sweat glands, are distinctly outlined with a brilliant white line of minerals, and the cytoplasmic ash of the cells appears as an evenly distributed bluish residue. The residue of the basal layer of the epidermis consists of large white masses of ash, which correspond in position to the nuclei of the basal cells. The ash of the cells of the stratum corneum appears as a dense white line. It is of considerable interest that the outer layer of the skin contains so great a concentration of inorganic material.

The method of micro-incineration does not permit accurate quantitative studies nor does it give much insight into the natural state of the inorganic constituents of tissues. Some information in this direction, however, has been obtained indirectly by extracting the tissue with various solvents before micro-incineration.[2] Thus, inorganic elements combined with lipids would probably be extracted by fat solvents and would not appear in the final ash. And indeed it was actually found that the preliminary treatment of skin with lipid solvents invariably removed intercellular and cytoplasmic deposits of minerals whereas the residue from cell walls and nuclei remained. Preliminary extraction of the skin with water, on the other hand, removed much or nearly all of the inorganic material from the nuclei and left only the diffuse cytoplasmic minerals. These interesting results suggest that the inorganic constituents of the cytoplasm and intercellular spaces are intimately associated with fats, whereas those of the nucleus and cell wall are present in a water-soluble form.

Since the skin may be a depository for metals of a toxic nature, a method for their qualitative detection is frequently needed. The spectrographic procedure is usually relied on for this purpose. By subjecting small dermal biopsy specimens to a high temperature in an electric arc, as has recently been described,[3] characteristic absorption spectrums of the elements present may be produced, and from these it is possible to detect and identify positively the minerals present. In addition, reliable information as to the quantity of the element present may be secured. The spectrographic procedure has proved extremely valuable recently in the identification of lead, gold, nickel and silver in the skin of individuals exposed to excessive amounts of these elements.[4] The wide applicability of the spectrograph to the qualitative and quantitative determination of inorganic elements in small biopsy specimens suggests that this method may be of practical value in the diagnosis of metallic poisoning.

1. Bohnstedt, R. M.: Untersuchungen über den Mineralgehalt der Epidermis und Cutis, Klin. Wchnschr. **10**: 1666 (Sept. 5) 1931.

2. Kooyman, D. J.: State and Localization of Inorganic Salts in the Skin as Revealed by Extraction and Micro-Incineration, Arch. Dermat. & Syph. **32**: 394 (Sept.) 1935.

3. Gaul, L. E., and Staud, A. H.: Clinical Spectroscopy: Advantages and Physical Principles of the Spectrograph and Technic in Taking Specimen for Biospectrometric Analysis, Arch. Dermat. & Syph. **32**: 385 (Sept.) 1935.

4. Gaul, L. E., and Staud, A. H.: A Spectrometric Analysis of Biopsy Specimens Obtained from Cases of Plumbism and Workmen in Daily Contact with Lead Paints, J. Nerv. & Ment. Dis. **81**: 265 (March) 1935; A Study of Biopsy Material Taken from Patients Receiving Gold Sodium Thiosulphate, Arch. Dermat. & Syph. **28**: 790 (Dec.) 1933; Seventy Cases of Generalized Argyrosis Following Organic and Colloidal Silver Medication Including a Biospectrometric Analysis of Ten Cases, J. A. M. A. **104**: 1387 (April 20) 1935; The Quantitative Retention of Nickel in Psoriasis, Arch. Dermat. & Syph. **30**: 697 (Nov.) 1934.

SIR THOMAS BARLOW AND INFANTILE SCURVY

The ninetieth birthday of Sir Thomas Barlow serves as the occasion for a special issue of the *Archives of Disease in Childhood*—an official publication of the British Medical Association — devoted to infantile scurvy.[1] The historical aspects of the occasion are especially illuminated by the reproduction of Barlow's original communication of 1883. The history has been sketched by Still and supplemented by an article on Cheadle by Poynton. Obviously, speculations prior to Barlow's paper approached the correct interpretation of this condition, but these contributions lacked that definite foundation in clinical and pathologic observation established for the first time by him. Barlow was the first, with the possible exception of Ingerslev—twelve years earlier—who clearly distinguished between rickets and infantile scurvy. His summation can scarcely be improved today. "The characteristic symptoms of the so-called acute rickets, viz., the special limb affection and the cachexia, with or without sponginess of gums, are not due to rickets at all but are truly scorbutic. The anatomic basis of the limb affection is subperiosteal hemorrhage, and this hemorrhage probably accounts for some of the anemia. The disease may occur in rickety children, and perhaps in them more readily than in nonrickety children, but the amount of rickets may be almost nil. Although the disease tends spontaneously in many cases toward a slow but complete recovery, marked improvement often follows a vigorous and especially an early antiscorbutic treatment. The treatment recommended is . . . internally the use of raw meat juice, fresh milk and orange juice, or of some other fresh raw vegetable. . . . The use of the term acute rickets should be abolished for these cases, and that of infantile scurvy substituted."

The succeeding articles in the memorial issue of the *Archives of Disease in Childhood* deal with various phases of newer investigations of infantile scurvy and vitamin C. Zilva discusses the isolation and identification of vitamin C, one of the biologic triumphs of modern chemistry. The crystalline *l*-ascorbic acid is believed to be the active principle in the practically pure form. The isolation of this substance enabled the study of the chemical and physical properties to be made in detail. The ultimate advantages must needs be great.

The article on the recognition of scurvy by Park and others might well serve for consultation in the future. Infantile scurvy should become so rare as to make diagnosis increasingly difficult from lack of opportunity for observation of clinical cases. According to Park there is a long latent period during which scurvy may be manifest in the skeleton without recognizable symptoms. There are thus no known early signs of scurvy. Slight roentgen changes at the epiphyses and the scorbutic deformity of the rib are sometimes useful in making an early diagnosis. The chief reliance must still be placed on symptoms; of these, pain and tenderness in the legs are the most important. Every infant known not to have received antiscorbutic substances for over two months should be held under suspicion.

An allied problem that has been the subject of much recent investigation is the relation of vitamin C to the structure of the teeth. Pitts points out the most important difficulty so far encountered in the experimental studies: the animals heretofore used present fundamental dental or other differences from man. Malnutrition and latent scurvy are discussed by Frölich of Oslo, the vitamin C content of the liver of new-born infants by Toverud, the pathogenesis of scorbutic dystrophy by Rohmer and Bezssonoff of Strasbourg, and the anemia of infantile scurvy by Parsons and Smallwood of Birmingham. All in all, these admirable discussions of infantile scurvy could not come at a more appropriate time or in more convenient form.

1. Sir Thomas Barlow Birthday Number: Arch. Dis. Childhood **10**: 211-336 (Aug.) 1935.

OWNERSHIP OF ROENTGENOGRAPHIC NEGATIVES IN MICHIGAN

A roentgenographic negative made by a physician as an aid to diagnosis and treatment is, in Michigan, the property of the physician who makes it, unless he has entered into an agreement waiving ownership. The Supreme Court of Michigan rendered this decision September 9,[1] the first rendered by a court of last resort with respect to the ownership of roentgenographic negatives. The decision is binding on all courts in Michigan and it may have persuasive influence on courts in other jurisdictions.

Dr. Burton G. McGarry of Fenton, Mich., on whose initiative this case was brought to a successful issue, had treated an injured employee of the defendant, the J. A. Mercier Company, at its request. The company refused to pay for his services, basing its refusal in part on the ground that Dr. McGarry refused to deliver to the company, for examination by other physicians, certain roentgenographic negatives of the patient, the cost of which was included in Dr. McGarry's bill. At no time did Dr. McGarry refuse to permit other physicians to examine the negatives while they remained in his clinic. In the circuit court judgment was given in Dr. McGarry's favor, and the company appealed to the Supreme Court of Michigan.

Roentgenographic negatives, said the Supreme Court, are practically meaningless to an ordinary layman. They are as much a part of the history of the case as any other record made by a physician. They constitute an important part of a physician's clinical record and preserve much of value in his experience. In a malpractice suit they may constitute unimpeachable evidence that fully justifies the treatment of which a patient complains. They are analogous to the microscopic slides of tissues that physicians make to aid

1. McGarry v. the J. A. Mercier Co., — Mich. —, — N. W.—.

them in diagnosis and treatment and which it would hardly be asserted belong to any one other than the physicians by whom they are prepared. Although roentgenographic negatives differ from the negatives of ordinary photographs, the fact that they are the property of the physicians who make them may possibly be inferred from court decisions that have held that, in the absence of express agreements to the contrary, the negatives of photographs belong to photographers, not to the persons for whom the photographs were made.

There is every good reason, said the Supreme Court, for holding that roentgenographic negatives are the property of the physician rather than of the patient or other person who employs the physician, even though the patient or such other person is charged with the cost of making them. Dr. McGarry was fully justified in refusing to surrender possession of the negatives he had made. In the absence of an agreement to the contrary, such negatives belong to the physician who makes them incident to treating a patient.

While the phraseology of this decision, literally construed, limits its applicability to cases in which physicians make roentgenographic negatives for their own use, it may reasonably be assumed that such negatives made for a physician, to be interpreted by him, are his property quite as much as if he had made them himself. The decision leaves undetermined the questions whether a patient, personally or through physicians or others employed by him, has the right to inspect a roentgenographic negative while it remains in the possession of the physician who made it, or to require, on payment of the reasonable cost, that prints of the negative be furnished to him. It is, however, a distinct advance toward the settlement of a troublesome and important question.

Current Comment

PRURITUS

Itching, which is usually considered almost the private domain of the dermatologist, has recently been discussed by Lord Horder [1] as a general medical problem. Both the local and the general factors that cause pruritus to reach a stage of pathologic discomfort are exceedingly numerous. As he points out, all the world itches but for different reasons in different persons. Thus, for example, the two extremes of personal cleanliness as well as excessive or deficient perspiration generally produce itching of more than physiologic proportions. Without in any way attempting to list all the general causes of pruritus, Horder mentions several that might easily be overlooked if the observer's attention is too sharply focused on the offending part. Diabetes, uremia, leukemia and jaundice are well known. The itching that occurs in Hodgkin's disease is less well known but is sometimes severe and may even help in diagnosis. There are numerous others, but the most common, he feels, is gout. In what manner this symptom is produced it is still impossible to state, and for the present each case must be considered on its own merits. Certain allergic disturbances can unquestionably produce itching, the best known being urticaria and eczema. The fact that serum sickness has frequently an incubation period of from eight to ten days goes to show that considerable latency may exist between cause and effect in pruritic disease, though it is true to say that when the irritant is inhaled, or is absorbed from the alimentary tract, the evidence of sensitization is usually much more rapid. The nervous factor in itching overlaps both causes, such as gout and allergic disturbances. Certainly patients with what is called nervous instability are especially susceptible to the complaint of itching. Organic disease of the nervous system leads to few instances of pruritus. Thus, itching, like other symptoms that become relegated for a time to a special branch of medicine, finds return to general study necessary.

1. Horder, T. J.: Pruritus, Lancet **2**: 287 (Aug. 10) 1935.

ELECTROLYTES AND WATER BALANCE

The importance of water in the organism is a physiologic axiom. A consideration of the many biologic functions of water explains this circumstance. The tissues with which water is in contact as well as the substances dissolved in it all have the ability to exert a significant influence on the movement and localization of this important solvent. Furthermore, in vitro experiments have demonstrated that the water-holding capacity of proteins is altered when the hydrogen ion concentration is changed. The vast importance of water retention and of dehydration in clinical medicine has stimulated persistent effort to shed light on the mechanism involved in these conditions. In a recent study, Davis and Dragstedt [1] have assessed the relative importance of acid-base change in the tissues versus the alteration of osmotically active substances dissolved in the body fluids, causing the retention or loss of water. Normal animals (dogs) eliminate intravenously administered water (as 0.9 per cent sodium chloride solution or 5 per cent dextrose) promptly. After dehydration produced by withholding drinking water, there was marked retention of the fluid after intravenous injection. On the other hand, after total loss of gastric juice with the concomitant loss of electrolyte and the resulting alkalosis, water administered intravenously was not retained much better than when given to normal animals. Essentially the same results were obtained after total loss of pancreatic juice. In both cases there had occurred marked disturbance in the acid-base balance of the blood. From these data the Chicago investigators conclude that the alteration of hydrogen ion concentration in the body fluids plays a minor part in the retention of water; "the ability of the organism to retain water is dependent upon its total content of osmotically active particles." The results of the foregoing study indicate that the reaction of the tissues is of far less importance in this respect and support, again, the rationale of the parenteral use of salt solution in cases in which there is obvious disturbance in the water balance.

1. Davis, H. A., and Dragstedt, L. R.: Am. J. Physiol. **113**: 193 (Sept.) 1935.

Association News

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD AT ASSOCIATION HEADQUARTERS, CHICAGO, SEPTEMBER 26 AND 27

STANDARD CLASSIFIED NOMENCLATURE OF DISEASE

Approval was given to the Standard Classified Nomenclature of Disease, and the hope was expressed that it will be adopted by hospitals for the classification of their cases, in order to establish uniformity and exactness of diagnostic terminology.

BROADCASTING PROGRAM

The new broadcasting program, "Your Health," which has been embarked on over the Blue network of the National Broadcasting Company each Tuesday afternoon at 5 p. m. eastern standard time (4 p. m. central standard time), under the general theme "Medical Emergencies and How They Are Met," presenting a dramatized program, with music, received approval.

APPOINTMENTS

Dr. H. B. Williams, New York, was elected to membership on the Council on Physical Therapy to succeed Dr. Yandell Henderson (resigned); Dr. David P. Barr, St. Louis, to membership on the Council on Pharmacy and Chemistry, to succeed Dr. Eugene F. Du Bois (resigned), and Dr. J. H. J. Upham, Columbus, Ohio, to the Committee on Legislative Activities.

Drs. Morris Fishbein, Allen H. Bunce and W. W. Bauer were appointed a committee to act in an advisory capacity to the Georgia Warm Springs Foundation.

The following committee was appointed, in accordance with the request of the House of Delegates, to study contraceptive practice and related problems: Drs. James R. McCord, Atlanta, Ga., chairman; George W. Kosmak, New York; W. A. Coventry, Duluth, Minn.; Carl Henry Davis, Milwaukee; Richard J. O'Shea, Seattle; John Rock, Boston, and Willard Richardson Cooke, Galveston, Texas, with Drs. James R. Bloss and W. C. Woodward, ex officio.

SURVEY OF CHRONIC ILLNESSES

Audience was given to Dr. L. R. Thompson, assistant surgeon general of the United States Public Health Service, for the presentation of plans for a survey, to be conducted under the auspices of the United States Public Health Service cooperating with state and city health departments, of chronic illness and physical impairments in the general population.

TERMS OF SERVICE FOR MEMBERS OF COMMITTEE FOR THE PROTECTION OF MEDICAL RESEARCH

The terms of service for the members of the Committee for the Protection of Medical Research were fixed as follows: Walter B. Cannon, 1936; Lewis H. Weed, 1936; A. J. Carlson, 1937; G. W. McCoy, 1937; Simon Flexner, 1938; M. C. Winternitz, 1938; Elliott C. Cutler, 1939; A. C. Ivy, 1939; William Pepper, 1939; William J. Kerr, 1940, and A. M. Schwitalla, 1940.

CHAIRMAN OF LOCAL COMMITTEE ON ARRANGEMENTS FOR KANSAS CITY SESSION

The nomination of Dr. E. H. Skinner by the Jackson County Medical Society as chairman of the local committee on arrangements for the Kansas City Session received the approval of the Board.

STATE MEDICAL JOURNALS ONLY TO BE TAKEN INTO COOPERATIVE MEDICAL ADVERTISING BUREAU

Consideration was given to a request that a privately owned periodical, which is serving as the official organ of one of the southern state medical associations, be taken into the Cooperative Medical Advertising Bureau, and the Board reaffirmed its policy that only state-owned medical journals shall be accepted by the Bureau.

FEDERATION OF COUNCILS

A plan for the correlation of the work of the Council on Pharmacy and Chemistry, the Council on Physical Therapy and the Committee on Foods to obviate overlapping and to make for greater efficiency received approval.

NEW VOLUME OF MEDICOLEGAL CASES

Authorization was given for the publication of a second volume of medicolegal cases, to contain abstracts appearing in the Medicolegal Department of THE JOURNAL from 1931 to date.

APPROPRIATIONS

The usual provisional appropriation was made for special exhibits at the next annual session of the Association, and one or two small additional appropriations were made for special work in one or two of the councils.

ENLARGING AND REMODELING OF HEADQUARTERS BUILDING

Consideration was given to the following proposals for relieving the crowded and congested condition in the headquarters office: (1) adding two stories on the present building and building an assembly room and a small meeting room on the roof, resurfacing the building with limestone and doing such repairing and remodeling as would seem to be indicated to put the present building in first-class condition; (2) selecting a new site and erecting thereon a new building which will provide for future growth. Bids and offers on these two proposals were received, and the Board approved the first proposal and authorized the closing of contracts.

MISCELLANEOUS BUSINESS

Other resolutions which were referred to the Board at the last session of the Association, as well as other matters that came before it, received careful consideration, and report will be made on these in due course.

RADIO BROADCASTS

The American Medical Association broadcasts over the Blue network of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers a toast: "Ladies and Gentlemen, Your Health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

The October schedule is as follows:

October 15. Unconsciousness, Morris Fishbein, M.D.
October 22. Asphyxiation, W. W. Bauer, M.D.
October 29. Poisonous Plants and Insects, W. W. Bauer, M.D.

The Foramen of Monro.—The interventricular foramina and the foramen of Monro together form a Y-shaped tubular connection between the two lateral ventricles and the third ventricle. Each upper arm of the Y, which together form the interventricular foramina, is directed medially and ventrally, while the foramen of Monro, which connects the tubular passageway between the lateral ventricles with the third ventricle, is ventral and slightly caudal to this imperfect tube and forms the lower limb of the Y.—Davidoff, L. M., and Dyke, C. G.: The Demonstration of Normal Cerebral Structures by Means of Encephalography: V. The Ventricles, Interventricular Foramina, and Aqueduct of Sylvius, *Bull. Neurol. Inst. New York* **4**:91 (March) 1935.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Dr. Hays Named State Epidemiologist.—Dr. George A. Hays, formerly with the Missouri State Board of Health, Jefferson City, has been appointed state epidemiologist of Arizona, succeeding Dr. Hugh F. Stanton, resigned. Dr. Hays is a member of the U. S. Public Health Service. He graduated from the University of Arkansas School of Medicine in 1918.

Deaths in 1934.—Deaths from all causes in Arizona in 1934 totaled 5,599, giving a rate of 1,222 per hundred thousand of population. There were 1,042 deaths attributed to tuberculosis, with a rate of 220. Cancer was responsible for 297 deaths during the year, a rate of 64.9, and diseases of the circulatory system 711, with a rate of 155. Two deaths were recorded for malaria. There were 367 violent and accidental deaths recorded. Motor vehicle accidents were responsible for 211 deaths, an increase over the 155 recorded in 1933 and 166 in 1932. With a total of 868 infant deaths, the rate per thousand live births was 104. Of these, 215 were white, 474 Mexican and 156 Indian.

CALIFORNIA

Dr. Dickie Again Appointed Health Officer.—The appointment of Dr. Walter M. Dickie, Berkeley, as health officer of California has been reported. Dr. Dickie had held the position from August 1920 to 1931, when he was succeeded by Dr. Giles S. Porter. Dr. Dickie succeeds Dr. Jay D. Dunshee, who resigned.

Society News.—Dr. Hans Lisser, San Francisco, gave an illustrated address before the San Mateo County Medical Society in San Mateo, September 28, on "Adrenal Tumors and Cushing's Disease."——At a meeting of the San Francisco County Medical Society, October 8, a program was presented with demonstration of patients. Included on the program were Drs. Chester L. Cooley on "Effect of X-Ray on the Pregnant Uterus and Fibroma"; Franklin A. Lowe, "Fractures of the Lower End of the Humerus," and William L. Rogers, "Progressive Bronchial Stenosis with Abscess Formation in a Tuberculous Patient." All are from San Francisco. A symposium on hypertension will be presented before the section on medicine and pediatrics, October 15; speakers will be Drs. Arthur Carol McKenney Jr. and George D. Barnett, San Francisco, and Max Peet, Ann Arbor, Mich.

DELAWARE

Society News.—Dr. Edward Schumann, associate professor of obstetrics, University of Pennsylvania School of Medicine, Philadelphia, presented a review of ectopic pregnancy before the New Castle County Medical Society in Wilmington, September 17; there was exhibited at this meeting a moving picture entitled "Physiology of Fertilization in the Human Female."

Personal.—Dr. Clealand A. Sargent, Dover, who for many years has held the joint position of director of communicable disease control and director of infant and maternal hygiene in the Delaware State Board of Health, has been provisionally appointed epidemiologist with the New York State Department of Health. Dr. Sargent has been associated with the state department of health since 1926, according to the state medical journal.

FLORIDA

Society News.—Dr. Joseph Lee Kirby-Smith, Jacksonville, was elected president of the Florida Society of Dermatology and Syphilology at its recent quarterly meeting in Jacksonville, and Dr. Wiley M. Sams, Miami, secretary.——Dr. Robert B. McIver, Jacksonville, spoke on "The Partial Resection of the Prostate Gland" before the Suwanee River Medical Association at its August meeting in Madison.——At a meeting of the Dade County Medical Society, September 6, Drs. Joseph H. Lucinian, Miami, discussed "X-Ray Therapy in Middle Ear and Mastoid Infections," and John R. Perdue, Miami, "An Unusual Perineal Burn, with Plastic Repair."——The DeSoto-Hardee-Highlands County Medical Society was addressed in Wauchula, August 13, by Drs. William C. Blake and James T. Cowart, Tampa, on "Classification and Treatment of Anemia" and "Vomiting in Infancy," respectively.——The Florida East Coast Medical Association will hold its meeting in St. Augustine, November 1-2, with the St. Johns County Medical Society as host. Speakers will include Drs. George M. Green, Daytona Beach, "Repair of Lacerations"; Isaac M. Hay, Melbourne, "Endometritis"; Gerard Raap, Miami, "Recent Advances in Radiation Therapy"; Turner Z. Cason, Jacksonville, "Important Consideration in Handling Diabetic Patients," and Wiley M. Sams, Miami, "Fungus Infections of Hands and Feet."

ILLINOIS

Society News.—The Bureau County Medical Society was addressed in Princeton, October 1, by Drs. Frederick R. Schmidt and W. A. Newman Dorland, Chicago, on "Nutrition and Skin Diseases" and "Origin of Ovarian Tumors," respectively.——At a meeting of the Sangamon County Medical Society, October 3, in Springfield, Dr. Jacob P. Greenhill, Chicago, discussed recent progress in obstetrics.——Dr. Olin West, General Manager and Secretary of the American Medical Association, Chicago, addressed the DeWitt County Medical Society, Clinton, September 23, and was guest of honor at a dinner.

Chicago

University News.—Included among promotions recently announced at Loyola University School of Medicine are those of Dr. Morris A. Glatt from clinical associate to assistant clinical professor of otorhinolaryngology, and Dr. Jacob P. Greenhill from associate clinical professor to clinical professor of gynecology.

Society News.—A symposium on embryology of the female pelvis in its relation to gynecology and obstetrics will be presented before the Chicago Gynecological Society, October 18; participants will be Leslie B. Arey, Ph.D., Dr. Otto F. Kampmeier and Dr. Arthur K. Koff.——Dr. Frank D. Dickson, Kansas City, Mo., discussed "Low Back Pain with Particular Reference to the Part Played by Congenital Abnormalities" before the Chicago Orthopaedic Society, October 11. Dr. Hershel I. Smith spoke on "Osteitis Fibrosa Cystica."——Dr. Arthur L. Tatum, professor of pharmacology, University of Wisconsin Medical School, Madison, will discuss "Studies in Specific Arsenical Chemotherapy," October 25, before a joint meeting of the Institute of Medicine and the Chicago Society of Internal Medicine.

INDIANA

Thyroid Tests at State Fair.—The Indiana State Medical Association recently sponsored a test for hyperthyroidism and hypothyroidism at the state fair, believing that the persons attending the fair would provide a good cross section of the population in which to determine the prevalence of thyroid disorders. Of 64,193 persons attending the fair, about 800 persons took the test.

Society News.—Dr. John M. Cunningham, Indianapolis, addressed the Daviess-Martin Counties Medical Society, September 10, on "Common Colds and Coughs."——At a meeting of the Huntington County Medical Society in Huntington, September 3, Dr. James F. Balch, Indianapolis, discussed genito-urinary diseases.——Dr. Max A. Bahr, Indianapolis, spoke on "Mental Mechanisms of the Mind Diseased" before the Gibson County Medical Society, September 9.——Dr. Burrill B. Crohn, New York, will conduct a clinic on gastrointestinal diseases before the Indianapolis Medical Society, October 15.——Dr. Sumner L. S. Koch, Chicago, will give an illustrated address before the Eleventh Councilor District Medical Society, October 30, in Peru, on "Diseases and Surgery of the Hand."

IOWA

Society News.—Dr. Waltman Walters, Rochester, Minn., discussed surgery of the gallbladder before the Scott County Medical Society, September 3, in Davenport.——At the summer meeting of the Upper Des Moines Medical Society in Spirit Lake, recently, speakers included Drs. James T. Priestley Jr., Rochester, Minn., on "Serologic Therapy in the Treatment of Appendicitis with Rupture and Peritonitis," and Abraham G. Fleischman, Des Moines, "Differential Diagnosis of Lesions in the Right Side of the Abdomen."——At a special meeting of the Des Moines Academy of Medicine and Polk County Medical Society, October 17, Dr. Harold B. Cushing, Montreal, will speak on "Poliomyelitis." Speakers before the September 24 meeting were Drs. Verl A. Ruth on "Injuries to the Cervical Spine"; Christian B. Luginbuhl, "Treatment of

Rheumatic Heart Disease and Its Complications," and Olin A. Elliott, "Early Diagnosis and Prophylaxis of Cancer of the Uterine Cervix."

LOUISIANA

Personal.—Dr. William H. Slaughter, senior surgeon, U. S. Public Health Service, has taken charge of the U. S. Marine Hospital in New Orleans, succeeding Dr. Thomas B. H. Anderson, who has been transferred to the marine hospital in Baltimore.——Dr. William B. Clark was recently made assistant professor of ophthalmology and Dr. Willard R. Wirth assistant professor of medicine at the Graduate School of Medicine, Tulane University of Louisiana, New Orleans.

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended September 28, indicate that the highest mortality rate (17.4) appears for New Orleans, and for the group of cities as a whole, 9.9. The mortality rate for New Orleans for the corresponding period last year was 15.3 and for the group of cities, 10.1. The annual rate for eighty-six cities for the thirty-nine weeks of 1935 was 11.4 and the same rate appears for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

MARYLAND

Dinner to Dr. Bloodgood.—The Association for the Study of Neoplastic Diseases held a dinner in honor of Dr. Joseph C. Bloodgood, adjunct professor of surgery, Johns Hopkins University School of Medicine, and one of the founders and directors of the association, during its annual meeting in Washington, D. C., September 6. Dr. John Shelton Horsley, Richmond, Va., presided; Clarence C. Little, Sc.D., managing director of the American Society for the Control of Cancer, was among the speakers.

Monument to Johns Hopkins.—A monument to Johns Hopkins, who gave $7,000,000 to establish the university and hospital bearing his name in Baltimore, was dedicated, September 18, in the presence of hundreds of citizens, professors and students of the university, the New York *Times* reported. The monument, which stands in the center of the plaza facing the Johns Hopkins University campus, is the gift of the Municipal Art Society to the city. It is the work of Hans Schuler, director of the Maryland Institute. Douglas H. Gordon, assistant U. S. district attorney and president of the Municipal Art Society, presided. The city was represented by Mayor Howard W. Jackson and the university by its president, Isaiah Bowman, Ph.D.

Semiannual Meeting.—The Medical and Chirurgical Faculty of Maryland held its semiannual meeting at Bel Air, October 10, with headquarters at the Kenmore Inn. Speakers included Drs. Charles Bagley Jr., on "Brain Abscess Due to the Gas Bacillus," and John Mason Hundley Jr., "Treatment of Carcinoma of the Cervix." Both are from Baltimore. At the luncheon, Dr. Charles R. Richardson, president, Harford County Medical Society, gave an address of welcome; Dr. John M. T. Finney Sr., Baltimore, president of the Medical and Chirurgical Faculty of Maryland, the response. Dr. William Pepper, dean, University of Pennsylvania School of Medicine, Philadelphia, offered a greeting "from John Archer's Medical School," to which Judge Walter W. Preston, Bel Air, responded.

MASSACHUSETTS

Dr. Magrath Retires as Medical Examiner.—Dr. George Burgess Magrath, medical examiner of Suffolk County since 1907, has resigned because of ill health. Dr. Magrath graduated from Harvard Medical School in 1898, becoming in that year assistant in pathology. He has been professor of legal medicine at Harvard since 1931. Dr. William J. Brickley, Boston, associate examiner, will succeed Dr. Magrath. The acceptance of Dr. Magrath's resignation has been deferred to allow him to qualify for a pension under the county retirement system.

Personal.—Dr. Francis R. Mahony, Lowell, has been appointed a member of the Massachusetts State Board of Registration in Medicine, filling the vacancy made by the retirement of Dr. Robert F. Hovey, Springfield.——Clair E. Turner, Dr.P.H., professor of biology and public health, Massachusetts Institute of Technology, Cambridge, has been invited by the University of Calcutta, India, to deliver a series of six lectures on the organization of health education.——Dr. Samuel F. Marshall, who for ten years has been associated with the Henry Ford Hospital, Detroit, has joined the staff of the Lahey Clinic, Boston.——Dr. Siegfried Thannhauser, formerly director of the medical clinic and professor of internal medicine at the University of Freiburg in Bremen, has been appointed associate professor of medicine at Tufts College Medical School, Boston.

Commission to Codify Health Laws.—A public health commission to codify the health laws of the state, eliminating those which are obsolete and revising others, was appointed by Governor Curley, August 21. Dr. Henry D. Chadwick, state commissioner of public health, is chairman of the commission; Dr. Wilson G. Smillie, professor of public health administration, Harvard School of Public Health, vice chairman, and Dr. Charles F. Wilinsky, deputy health commissioner of Boston, secretary. Other members are:

Dr. Winfred Overholser, state commissioner of mental diseases.
Dr. Charles E. Mongan, Somerville, president, Massachusetts Medical Society.
Curtis M. Hilliard, professor of biology, Simmons College.
Dr. Alexander Begg, dean and Waterhouse professor of anatomy, Boston University School of Medicine.
Samuel C. Prescott, Sc.D., dean of science and professor and head of the department of biology and public health, Massachusetts Institute of Technology.
Dr. Dwight O'Hara, professor of preventive medicine, Tufts College Medical School.
Dr. David Scannell, surgeon-in-chief, Boston City Hospital.
Dr. Francis X. Mahoney, health commissioner of Boston.
Dr. Gerardo Balboni, member of the staff of Massachusetts General Hospital.

In addition to the codification of health laws, the commission also expects to establish minimum standards for local health officers, organize county health districts, make a study of industrial hygiene, license hospitals and study milk control practices.

MICHIGAN

Appointments to State Board.—Dr. Elmer W. Schnoor, Grand Rapids, was appointed a member of the state board of registration in medicine, September 18, succeeding Dr. Frank A. Kelly, Detroit. Other members of the board who were reappointed are Drs. Jacob D. Brook, Granville, health officer of Kent County; William Ellwood Tew, Bessemer; J. Earl McIntyre, Lansing, and Claude R. Keyport, Grayling.

Society News.—Dr. Henri Coutard, Paris, France, addressed a joint meeting of the Wayne County Medical Society and the Detroit Roentgen Ray and Radium Society, October 7; a dinner in his honor preceded the lecture.——Dr. Robert L. Novy, Detroit, addressed the Gratiot-Isabella-Clare Counties Medical Society, September 26, on "The Failing Heart of Middle Age."——At a meeting of the Detroit Obstetrical and Gynecological Society, October 1, Dr. Howard C. Walser presented a case report on "Subacute Hepatitis," and Dr. Loren C. Spademan discussed "The Rôle of the Amniotic Sac in Labor."——Dr. Robert W. Keeton, Chicago, addressed the Calhoun County Medical Society, Battle Creek, October 1, on "Treatment of Diabetes."

MISSISSIPPI

Society News.—Dr. Henry C. Ricks presented a paper entitled "Incidence of Syphilis in Apparently Healthy Adult Applicants for Positions as Food Handlers" before the Central Medical Society at its meeting, September 3, in Jackson. Case reports were presented by Drs. Ross E. Anderson and Frank H. Hagaman on "Removal of Senile Cataract" and "Compound Fracture of Tibia," respectively.——Speakers before the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg, September 10, were Drs. George F. Carroll, Biloxi, on "Essential Points in Successful Spinal Analgesia"; John A. K. Birchett Jr., Vicksburg, "Thyroidectomy," and Willard H. Parsons, Vicksburg, "Surgery in Relation to Pediatrics."——Dr. William L. Little, Wesson, addressed the Tri-County Medical Society at Monticello, among others, on "Care of the Premature Infant," and William H. Frizell, Brookhaven, "Obscure Abdominal Pain."

NEBRASKA

Executive Secretary Appointed.—Mr. M. C. Smith, Curtis, has been appointed executive secretary of the Nebraska State Medical Association, pursuant to action taken by the house of delegates at the annual meeting of the association.

Society News.—Drs. Sebastian J. Carnazzo and John C. Sharpe, Omaha, addressed the Omaha-Douglas County Medical Society, September 24, on "Subtotal Resection of Suprarenal Glands for Essential Hypertension" and "The Hematocrit as an Aid in the Treatment of Anemias," respectively.——Drs. Howard K. Gray and Edward H. Rynearson, Rochester, Minn., addressed the Madison Six Counties Medical Society, Beemer, September 17, on "Surgical Management of Benign Lesions of

the Stomach and Duodenum" and "Classification and Treatment of Goiter," respectively.

NEW HAMPSHIRE

Society News.—The New Hampshire Surgical Club held its thirty-eighth annual meeting at Rye Beach, September 7-8. Guest speakers were Drs. Irving J. Walker, Francis C. Newton and Richard H. Miller, Boston, who discussed infection of clean operative wounds. Dr. Albert Warren Stearns, dean, Tufts College Medical School, Boston, was the speaker at a banquet Saturday evening, September 7. Dr. Robert J. Graves, Concord, was elected president and Dr. Ralph E. Miller, Hanover, secretary.

NEW YORK

Nassau County Hospital Opened.—Meadowbrook Hospital, a 200 bed institution under the jurisdiction of Nassau County, was recently opened for patients. The completion of a public hospital for the county is the culmination of many years of effort on the part of the Medical Society of the County of Nassau to obtain adequate hospital facilities. In 1922 the society first presented a petition to county authorities, asking for a contagious disease hospital. In 1923 it made a survey of the hospital situation of the county. In 1930 the society took an active part in a campaign for a bond issue of $1,750,000 to finance the hospital, approved by the voters

Nassau County's Public Hospital

8 to 1 (THE JOURNAL, Nov. 29, 1930, p. 1679). The new hospital is about 4 miles east of Hempstead. All departments of a general hospital are included, with a separate suite for psychopathic patients and a separate building for communicable diseases. The staff consists of 214 physicians and dentists of the county and seventy nurses. Within a few weeks after the opening, the hospital was 90 per cent occupied. Dr. Alexander J. McRae is superintendent of the hospital; Mr. George L. Hubbell is president of the board of managers and Dr. Benjamin W. Seaman, vice president.

New York City

Hospital Positions Open.—The Hospital for Joint Diseases announces that appointments will be made to fill six places on the general service, three to begin July 1, 1936, and three, Jan. 1, 1937. All are for two years' rotating service. Graduating students and graduates of class A medical schools (unmarried men) are eligible for the examination, which will be held during Christmas week, the exact date to be announced later. Application should be made before December 15 to the director of the hospital, Madison Avenue at One Hundred and Twenty-Third Street.

Lectures on Dental Medicine.—Mount Sinai Hospital announces a course in dental medicine to be given during the coming winter. The first lecturer was Dr. Joseph Schroff, October 10, on "Oral Surgical Lesions and Operative Procedure and Treatment." Others will be:

Dr. Asher Winkelstein, November 14, Dental Infection and Its Relation to Gastro-Intestinal Disease.
Dr. Isadore Rosen, December 12, Oral Lesions from the Viewpoint of the Dermatologist.
Dr. Paul Klemperer, January 9, Histopathologic Studies of Dental Tissues.
Dr. John H. Garlock, February 13, Treatment of Unusual Oral Lesions from the Viewpoint of the General Surgeon.
Dr. Herman Lande, March 12, Diabetes and Its Relation to Diseases of the Oral Cavities.
Dr. Herbert Pollack, April 9, Oral Manifestations of Vitamin Deficiency and the Dental Aspect of Abnormal Metabolism.

City Opens Drive on Noise.—New York's campaign against noise was officially opened, October 1, with instructions from Mayor La Guardia to the police department to warn offenders and try to educate the public without making arrests. The sounding of automobile horns between 11 p. m. and 7 a. m. is forbidden and the citizens have been admonished to keep radios at a moderate level. The city government announced that measures would be taken to eliminate as much as possible of the noise made by its own employees. The sanitation department, which has been cited as one of the chief offenders, will have new trucks with pneumatic tires and the garbage collectors have been ordered to be more quiet in their handling of ash and garbage cans in the early morning hours. The police department is to have 400 of its horses shod with rubber shoes. Orders have been issued to keep all blowing of sirens on fire and police equipment to a minimum. Police inspectors were ordered to submit every morning until further notice a consolidated report of admonitions and warnings given by patrolmen during the twenty-four hours ending the preceding midnight. During the first three days 4,071 warnings were given and nine summonses were served. The League for Less Noise has established a bureau to receive and investigate complaints, among which it was said that automobile horns and barking dogs were most frequently mentioned, with the department of sanitation trucks a close third. The campaign against night noises is to continue through October; in November action will be taken to reduce the daytime din of the city.

OHIO

University News.—Dr. Paul György, formerly of the department of pediatrics of the University of Heidelberg, Germany, and recently of Cambridge University, England, has joined the department of pediatrics at Western Reserve University School of Medicine, Cleveland. He will also serve on the staff of the Babies' and Children's Hospital, which was recently reopened (THE JOURNAL, September 21, page 974).

Society News.—Dr. Otto J. Seibert, Cincinnati, addressed the Warren County Medical Society, Lebanon, September 3, on diseases of the thyroid.——Dr. Chelsea A. Coleman, Dayton, addressed the Greene County Medical Society, Xenia, September 5, on recent advances in treatment for diseases of the kidney.——At a meeting of the Hancock County Medical Society, Findlay, September 5, speakers were Drs. Francis W. Morley and Lambert J. Herold, Toledo, on infant feeding and hemorrhoids, respectively.——Dr. Walter M. Simpson, Dayton, addressed the Marion Academy of Medicine, September 4, on artificial fever therapy.——Dr. Everett D. Plass, Iowa City, gave an address before the Mahoning County Medical Society, Youngstown, September 17, on "Simplification of Obstetric Care."——The Portage County Medical Society had Dr. Walter A. Hoyt, Akron, as guest speaker at its meeting in Ravenna, September 5, on "Head Injuries in Automobile Accidents."——Dr. Waltman Walters, Rochester, Minn., addressed the Columbus Academy of Medicine, September 30, on "Studies on Surgical Lesions of the Stomach and Duodenum."——Dr. Marion A. Blankenhorn addressed the Academy of Medicine of Cincinnati, October 8, on "Deficiency Diseases of Adults." Dr. Douglas B. Remsen, Baltimore, will be the speaker, October 15, on "Pathologic Physiology of Cerebrospinal Fluid." Dr. Austin A. Hayden, Chicago, will show a motion picture of the activities of the American Medical Association at the meeting of the academy October 22.——Dr. Rosco G. Leland, Chicago, director, Bureau of Medical Economics of the American Medical Association, addressed the Montgomery County Medical Society, Dayton, September 27, on "The Responsibility of the Medical Profession."——Dr. Elias C. Fischbein, Dayton, addressed the Miami County Medical Society, Troy, September 6, on "Traumatic Neurosis."

OREGON

University News.—A research fellowship in physiology for $1,200 a year has recently been established at the University of Oregon Medical School, Portland, by Eli Lilly and Company, Indianapolis. George E. Burget, Ph.D., professor of physiology, will be in charge of research.

State Medical Election.—Dr. Thomas Wynne Watts, Portland, was chosen president-elect of the Oregon State Medical Society at its annual meeting in Gearhart, September 21; Drs. William J. Weese, Ontario, Otto C. Hagmeier, Astoria, and John C. Vandevert, Bend, were elected vice presidents, and Dr. Morris L. Bridgeman, Portland, secretary. Dr. George A. Massey, Klamath Falls, was installed as president. Next year's meeting will be at The Dalles.

PENNSYLVANIA

Hospital News.—Funds for research on serums have recently been made available at Abington Hospital, Abington; the investigation will be carried on under the direction of Drs. Stewart Mudd, Joseph Stokes Jr. and Harry B. Wilmer, all of Philadelphia, and John Eiman, Abington. Dr. Arthur C. Hehn, Philadelphia, was recently elected president of the ex-residents' association.

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Philadelphia

Newbold Lecture.—Dr. Cyril N. H. Long, director of the George S. Cox Medical Research Institute, University of Pennsylvania, delivered the Mary Scott Newbold Lecture of the College of Physicians of Philadelphia, October 2. Dr. Long's subject was "The Interrelationship of the Various Glands of Internal Secretion Concerned with Metabolism."

Professor Appointed at Jefferson.—Dr. David M. Davis, Phoenix, Ariz., has been appointed professor of genito-urinary surgery at Jefferson Medical College to succeed the late Dr. Thomas C. Stellwagen. Dr. Davis is a graduate of Johns Hopkins University School of Medicine and was formerly a member of the faculty of the University of Rochester School of Medicine, Rochester, N. Y. Dr. Louis H. Clerf, professor of bronchoscopy and esophagoscopy, made the principal address at the opening of the college, September 23, on "Medicine as a Career."

Society News.—The first scientific meeting of the Philadelphia County Medical Society for the current season was held October 9; speakers were Drs. James Dowling Trask, New Haven, Conn., on "Abortive Poliomyelitis"; Howard C. Carpenter, "A Physical Appraisement of the Child," and Ralph S. Bromer, "Roentgenologic Study of Diseases Affecting the Long Bones in Children." At the first meeting, September 25, Dr. George C. Yeager was installed as president.——Drs. Frederick M. Law, New York, and Warren B. Davis, among others, addressed the Philadelphia Roentgen Ray Society, October 3, on "Roentgen Examination of the Nasal Accessory Sinuses" and "The Paranasal Sinuses in Childhood," respectively.——Speakers at a meeting of the Obstetrical Society of Philadelphia, October 3, were Drs. Owen J. Toland, on "The Incidence and Treatment of Secondary Anemia"; Catharine Macfarlane, "Endocrine Therapy in the Menopause" and Edward A. Schumann, "Manual Correction of Abnormal Presentations During Labor."

SOUTH CAROLINA

Program to Aid Crippled Children.—The South Carolina Society for Crippled Children and the state department of health have launched a statewide program for rehabilitation, with district headquarters in Greenville, Columbia, Florence and Charleston. Clinics will be held weekly in these cities and in Spartanburg under the following orthopedic surgeons: Drs. Joseph Warren White, Greenville; William A. Boyd and Austin T. Moore, Columbia, and F. Adelbert Hoshall, Charleston. Children will be recommended for the clinics by their county health officers and their transportation to the nearest clinic will be arranged by local committees of the society for crippled children. A committee consisting of Drs. D. Lesesne Smith, Spartanburg, and Julian P. Price, Florence, and Mr. P. G. Sherer, chief of the division of vocational rehabilitation in the state department of education, is in charge of the program, which is financed by funds raised by the society and by money available to the state health department for orthopedic work.

SOUTH DAKOTA

Society News.—Dr. Floyd Coslett, superintendent of the South Dakota State Sanatorium for Tuberculosis, Sanator, among others, addressed the Seventh District Medical Association in Sioux Falls, September 10, on early diagnosis and new methods of treatment of tuberculosis.

VERMONT

State Medical Meeting at Rutland, October 17-18.—The annual meeting of the Vermont State Medical Society will be held at Rutland, October 17-18, under the presidency of Dr. George G. Marshall, Rutland. The program includes the following:

Dr. Augustus B. Wadsworth, Albany, N. Y., Practical Limitations of Vaccine and Serum Therapy.
Dr. Ward A. Woolner, Ayr, Ont., Rural Health Problems and Their Control.
Dr. Newton D. Smith, Rochester, Minn., Obscure Abscesses a Cause of Acute Anal Pain.
Drs. Edward J. Rogers and Louis Rabinowitz, Pittsford, Chronic Cough.
Dr. Henry A. Christian, Boston, Types of Edema and Their Treatment.
Dr. Foster Kennedy, New York, The Biopsychic Approach to Diseases of the Mind: Its Dependence on Neurology and General Medicine.
Dr. Oliver N. Eastman, Burlington, Hysteroptosis.
Dr. Arthur J. Bedell, Albany, N. Y., Causes of Sudden Blindness.
Dr. Charles F. Whitney, Burlington, Chemistry in Relation to the Practice of Medicine.

Dr. Frank C. Phelps, Vergennes, will give the vice president's address. Dr. James S. McLester, Birmingham, Ala., President, American Medical Association, will speak on "Modern Trends of Clinical Thought."

VIRGINIA

State Medical Meeting in Norfolk.—The sixty-sixth annual session of the Medical Society of Virginia will be held at the Monticello Hotel, Norfolk, October 15-17, under the presidency of Dr. Francis H. Smith, Abingdon, and with the Norfolk County Medical Society acting as host. Guest speakers will be Drs. Arthur C. Christie, Washington, D. C., on "The Answer of the Medical Profession to State Medicine" and James E. Paullin, Atlanta, Ga., "Significance and Diagnostic Importance of Pain in Disease." Others on the program will include:

Dr. Paul D. Camp Jr., Richmond, Essential Hypertension and Bright's Disease: Their Differential Diagnosis and Treatment.
Dr. Blanton P. Seward, Roanoke, Diagnosis of Coronary Thrombosis.
Dr. William H. Higgins, Richmond, The Heart in Myxedema: Clinical and Postmortem Findings.
Drs. Charles J. Andrews and Richard B. Nicholls, Norfolk, Unusual Indications for Cesarean Section.
Dr. Donald M. Faulkner, Richmond, Nonunion of Fractures of the Humerus.
Dr. J. Shelton Horsley, Richmond, Diagnosis and Treatment of Cancer of the Large Bowel.
Dr. Julian L. Rawls, Norfolk, Vascular Surgery Necessitated by Trauma.
Drs. Vincent W. Archer and Walter L. Kilby, University, Present Day Treatment of Certain Malignant Diseases.
Dr. Raymond Kimbrough, Norfolk, Dermatoses and Cold Weather.
Drs. Everett C. Drash, University, and James B. Nicholls, Catawba Sanatorium, Problem of Pleural Adhesions in Pulmonary Tuberculosis.
Dr. Charles L. Harrell, Norfolk, Nontuberculous Suppurative Condition of the Lung Treated by Artificial Pneumothorax.
Dr. Paige E. Thornhill, Norfolk, External Version in the Eighth Month for Breech Presentations.
Dr. W. Ambrose McGee, Richmond, Management of the Allergic Individual.
Dr. Frederick M. Hodges, Richmond, Results of Roentgen Treatment of Some Very Advanced Malignancies.
Drs. Howard R. Masters and Lee E. Sutton, Richmond, Poliomyelitis: Diagnosis of the Varieties.

There will be a symposium on therapy Wednesday afternoon, presented by Drs. Frederick C. Rinker, Norfolk; Joseph F. Geisinger, Richmond; Tiffany J. Williams, University, and Hugh C. Henry, Petersburg. The annual golf tournament will be held Tuesday afternoon at the Norfolk Country Club.

GENERAL

Society News.—The Central Society for Clinical Research will hold its eighth annual meeting at the Drake Hotel, Chicago, November 1-2.——The American Academy of Tropical Medicine will meet in St. Louis, November 20-21. Dr. Earl B. McKinley, Washington, D. C., is secretary.——The Pacific Coast Society of Obstetrics and Gynecology will hold its annual meeting in Los Angeles, November 6-9.

Changes in Status of Licensure.—The California Board of Medical Examiners reports the following action:

Dr. Robert V. Baker, Avalon, license restored, July 8; placed on probation for five years, without narcotic privileges or possession.
Dr. John V. Cocke, Los Angeles, license revoked, July 10, based on narcotic conviction.
Dr. George W. Frasier, Bear Valley, placed on probation for five years without narcotic privileges or possession, July 9.
Dr. Robert S. Friend, Glendale, license restored, July 10; placed on probation for five years without narcotic privileges or possession.
Dr. James A. Hadley, Oakland, license restored, July 9; placed on probation for five years without narcotic privileges or possession.
Dr. Arthur W. Hewitt, Los Angeles, placed on probation for three years without narcotic privileges or possession, July 9.
Dr. William J. Jacobs, formerly of Santa Barbara, in San Quentin Penitentiary on conviction of murder, license revoked, July 9.
Dr. Ramon Lopez, Brawley, license revoked, July 10, for narcotic addiction.
Dr. Samuel R. Lustberg, Los Angeles, license revoked, July 9, for conviction of conspiracy to defraud insurance company.
Dr. Frances E. M. McNealy, Los Angeles, license revoked, July 10, for narcotic addiction.
Dr. Byron H. Pelton, Compton, license revoked, July 9, for narcotic dereliction.
Dr. Charles M. Stewart, Los Angeles, license restored, July 8; placed on probation for five years without narcotic privileges or possession.

The Colorado State Board of Medical Examiners reports the following:

Dr. Ernest Otis McCleary, Ordway, Colo., license revoked, for narcotic addiction.

The State Board of Medical Education and Licensure of Pennsylvania reports the following:

Dr. Harry C. Zimmerly, Quarryville, license revoked September 26, following his conviction on charges of abortion, abortion causing death, and violation of the narcotic laws.

Poliomyelitis Declines.—Poliomyelitis is reported to be definitely declining in the East. Sixty-five cases were reported in New York City during the week ended October 4, compared with 122 for the preceding week. The total number of cases for the year is 1,922 and the highest number in any week of the outbreak was 356 for the week ended August 30. Opening of schools in Fall River, Mass., was delayed from September 4 to September 26, when authorities lifted restrictions from public gathering places; there have been 120 cases in the city since

January 1. At the Charles V. Chapin Hospital, Providence, R. I., there were 102 cases September 24. Schools in Louisville, Ky., were to open September 30, but those in Jefferson County were ordered to remain closed because of the disease. Schools were closed in Owensboro, Ky., September 24, after thirteen cases had been reported in the town and in Daviess County. In North Carolina, where the present outbreak began, fifteen new cases were reported during the week ended September 28, compared with eight the previous week. The U. S. Public Health Service reported 665 cases from ninety-eight cities for the week ended September 21.

Government Services

Examination for Reserve Corps of Public Health Service

The U. S. Public Health Service announces an examination for entrance into the Reserve Corps of the U. S. Public Health Service in the grade of assistant surgeon, to be held November 18. Boards will be appointed in various cities so as to avoid the necessity for travel, which if necessary must be made at the candidate's expense. Applicants must have graduated from reputable medical colleges and must have had at least one year's internship. They must not have passed their thirtieth birthday. Compensation will be $3,158 per year for an officer with dependents, $2,699 for one without dependents. Successful candidates will be ordered to active duty in the Reserve Corps, in which it is expected there will be vacancies soon after Jan 1, 1936; they will be eligible for examination for entrance into the regular corps when such examinations are held, provided they have not passed their thirty-second birthdays. Those who wish to take this examination should request the necessary blanks and other information from the Surgeon General, U. S. Public Health Service, Washington, D. C.

General Truby Retires

Brig. Gen. Albert E. Truby, commandant of the Army Medical Center, Washington, D. C., retired on account of the age limit, July 31. General Truby was born in Otto, N. Y., and graduated from the University of Pennsylvania School of Medicine in 1897, shortly afterward entering the army. He served in Cuba and in the Philippines as health officer of the Canal Zone and superintendent of Ancon Hospital, Panama; during the World War, he was on duty in the office of the surgeon general and later in the office of the chief of air service. Since 1922 General Truby has been in command of Letterman General Hospital, San Francisco, served a second tour in the Philippines and served as surgeon of the Second Corps Area. He was placed in command of the medical center in 1931.

Physiologic Research in Aviation

A new unit for research in connection with development of flying equipment and accessories for protection of the health and lives of fliers has been established at Wright Field, Dayton, Ohio, under the direction of Capt. Harry G. Armstrong. Among problems that will be investigated are the use of oxygen at high altitudes and its effects, the reaction known as "blacking out," endurance of cold in open cockpits and the escape of carbon monoxide into cockpits. The new unit will take up work that was done by the Air Service Medical Research Laboratory at Mineola, L. I., during the World War and until 1920 under the direction of Edward C. Schneider, Ph.D., now of Middletown, Conn.

CORRECTIONS

Ergotamine Tartrate in the Puerperium.—In the article by DerBrucke, in THE JOURNAL, September 14, page 868, first line, second column, the sentence beginning "On the other hand" should read as follows: On the other hand, in the current series, wherein 1 cc. of ergotamine tartrate almost universally replaced solution of pituitary, the average height on the first day post partum was 11.8 cm.

Calcium in Child's Diet.—In the query and minor note entitled "Calcium in Child's Diet," in THE JOURNAL, September 21, page 987, the answer to the first question should have been "A liter of human milk contains about 0.35 Gm. of calcium," instead of about 1.24 Gm., as was stated. In the answer to question 3, the ratio of calcium to phosphorus should have been given as about 1.3:1 in cow's milk, and 2.3:1 in breast milk.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 14, 1935.

The British Association for the Advancement of Science

At its annual meetings the British Association for the Advancement of Science epitomizes for the benefit of the public recent advances. At the Norwich meeting this year many of the papers were, as usual, of special interest to physicians.

CONFIRMATION OF THE DOCTRINE OF EVOLUTION

In his presidental address on "Form, Drift and Rhythm of the Continents," Prof. W. W. Watts recalled that when the association met at Norwich sixty-seven years ago the president, Sir Joseph D. Hooker, was one of the three scientific men representing botany, zoology and geology whom Darwin had selected as judges with whose opinion he would be content on the soundness of his theory of natural selection. The others were Thomas Huxley and Charles Lyell, and of the three the geologist Lyell was the hardest to convince, chiefly because the record of life then furnished by the rocks was manifestly so incomplete. But by 1863 his "Antiquity of Man" was published and showed that he was convinced. "Although infinitely richer than when Darwin wrote, the geological record," said Professor Watts, "still is and must from its very nature remain imperfect. Every major group of animal life is represented in the Cambrian fauna, and the scant relics that have been recovered from earlier rocks give little idea of what has gone before and no evidence whatever of the beginning of life. But from the Cambrian time onward the chain of life is continuous and unbroken. Type after type has arisen, flourished and attained dominion. Some of them have met extinction in the heyday of their development; others have slowly dwindled away; others, again, have not finished their downhill journey, or are still advancing to their climax. Study of the succession of rocks and the organisms contained in them has revealed that the great majority of species show close affinities with those which preceded and with those which followed them; that indeed they have been derived from their predecessors and given origin to their successors. We may now fairly claim that paleontology has lifted the theory of evolution from the limbo of hypothesis into a fact completely demonstrated by the chain of life which links the animals and plants of today with the earliest of their forerunners. Further, the geographic changes undergone by the earth have been so closely attendant on variation in life and the incoming of new species that it is impossible to deny a relation of cause and effect."

THE PITUITARY THE MASTER GLAND OF THE BODY

In his address to the section of physiology, Prof. P. T. Herring gave a fascinating account of the rise to importance of the pituitary gland from an anatomic curiosity of fifty years ago—a story to which he has contributed largely. For its size the pituitary is the most important organ in the body. In addition to its well known functions of regulating growth and controlling the sex organs, it acts on all the other ductless glands. It is a stimulator to the thyroid, parathyroid, adrenal cortex and endocrine tissue of the reproductive organs, and an inhibitor of the control of sugar utilization by the pancreas. Further, it acts and reacts with the neighboring portion of the brain (the hypothalamus), so that together they form an integrated whole. It has a peculiar blood supply which ensures that part of its secretion is carried directly to the hypothalamus while the rest is thrown into the general circulation. Evidence is accumulating that the hypothalamus is an important, if not the main, site

of integration of the basic vital activities of all vertebrates. The metabolism of solids and of water, with its accompaniment of hunger and thirst, the regulation of body temperature, emotional reactions, sleep, mating and reproduction may have an anatomic basis in the hypothalamus. On the one hand, pituitary secretion is under the control of nerve fibers emanating from the hypothalamus; on the other, certain pituitary hormones stimulate the hypothalamus to set in train nervous activities in remote parts of the body. Thus solution of pituitary acts on the hypothalamus to stimulate the vasodilator nerves of the skin, sweating and a fall in blood pressure, temperature and metabolic rate. An example in the reverse direction is that coitus in rabbits stimulates the hypothalamus by nervous means, causing it to stimulate the pituitary to increased secretion. In turn the pituitary secretion, circulating in the blood, acts on the ovary, causing extrusion of ripe eggs which can then be fertilized. A refinement recently discovered is that, by adjusting the blood pressure in two alternative routes, the pituitary secretion can find its way either directly to the hypothalamus or else into the general circulation, and, what is more, it may have different and even opposite effects in the two places. Thus much progress has been made in finding a material basis, if not for the soul at least for human temperament and the temperamental foundations of personality, which have been the stronghold of the upholders of vitalistic or transcendental views.

THE MODERN CONCEPTION OF THE ELEMENTS

In his presidential address to the section of mathematics and physics Dr. F. W. Aston gave a valuable survey of the story of isotopes, on which he has done so much valuable work. He said that for more than eighty years Dalton's postulate that all the atoms of an element are of the same weight was never questioned until Crocker did so in 1886. But his brilliant speculation remained unverified for more than twenty years, until the results of radioactivity made it a pressing problem. The atomic weight of lead is 207.2. This, however, turns out to be due to mixture of two kinds of lead atoms with weights of 206 and 208. This can be so because atomic weight depends on the total mass of the particles in the nucleus; chemical properties depend on the electrical charge on the nucleus. As the latter is the same in the two kinds of lead, they are chemically indistinguishable. Atoms of the same chemical behavior but of different weights were termed isotopes. They were at first found only among the products of radioactive disintegration, but later research has indicated that they are universal. Today no fewer than 253 stable isotopes are known. A year ago only four elements had not been resolved into isotopes. Since then platinum and gold have gone over to the majority; now only iridium and palladium remain and will certainly yield to improved technic. The most complex element is tin, which has no fewer than eleven isotopes. Dr. Aston made the remarkable prophecy that the nuclear chemist will transmute and synthesize elements as his elder brother has done molecules. "I foresee a time not immeasurably far distant, when it will be possible for us to synthesize any element whatever, wherever and whenever we please: alchemy indeed in the service of man."

PERSONALITY AND AGE

In the section of psychology Dr. L. Wynn Jones took for the subject of his presidential address Personality and Age. He drew the important distinction between chronological and physiological age. Different persons age in the real or physiologic sense at very different rates. An investigation in Germany showed that the subjective onset of old age—the age at which people begin to feel old—is on the average 49 years, but the range varies widely, from below 20 to over 80 years. Another point which emerged from this investigation was that some persons feel old physically long before they do mentally, and vice versa. For activities demanding the maximum expenditure of energy per second, such as sprinting, the optimum age is from 22 to 24. When technic and experience counts it rises, to 28¼ for tennis and 35 for golf. The deterioration of intellectual ability, as measured by memory and intelligence tests, is small with age. Ability to learn a systematic subject increases up to the age of 20 or 22, then drops very slowly to 35 and then a little faster to 45 or 50, but falls rapidly only quite late in life. Adults between 20 and 40 learn a modern language more rapidly than children of any age between 8 and 12. The applications of these facts run counter to popular beliefs. Industrial accidents (but not pedestrian accidents in traffic) decrease with age. Unemployed adults can well be trained for wholly new occupations. Adult education should play a much larger rôle in the community. The present break from school to industry is too abrupt, leading to stagnation or even retrogression of a large part of the young people of this country.

Postoperative Tetanus

Though elaborate methods have been adopted for the sterilization of catgut with the express object of destroying the organism of tetanus, cases of postoperative tetanus occur from time to time. An inquest has been held into the death from tetanus of a woman, aged 32, who was operated on for appendicitis in a hospital, The operation wound had soundly healed. It was examined for pieces of catgut, but only a piece of thread was found, which was kept for culture. Medical evidence was given that the instruments and catgut used at the operation were sterilized. It was suggested that, as the operation was an abdominal one, the tetanus infection might have arisen from the intestine. Specimens of the catgut used were examined by the pathologic department of the Ministry of Health and showed no evidence of tetanus bacilli, but cultures of tissue from the patient showed them.

Ambulance Service for Ethiopia

Though much has been done in the last few years to modernize part of the defense forces of Ethiopia, there is practically no ambulance service. A unit is now being formed in England. Men with surgical experience or versed in tropical diseases are particularly sought. As the object is purely humanitarian and the expedition is supported entirely by voluntary subscriptions, physicians in a position to offer their services for no remuneration, all expenses being paid, are asked to do so. In no case will a salary exceeding $1,250 a year be available. European medicine in Ethiopia is entirely in the hands of medical missionaries who have established hospitals in the country. They will do what they can for the treatment of the wounded, but their number is appallingly small for such a task.

The Radium Bomb in the Treatment of Cancer

Westminster Hospital, which has specialized for some years in the treatment of cancer by the radium bomb, will soon have a new bomb containing 4 Gm. of radium and costing $200,000. Portions of the new bomb are being made in the annex workshop of the hospital and the whole will be assembled and tested by the hospital physicist. The making of the new bomb is in itself a costly undertaking. A new tungsten alloy, one and a half times the density of lead, will be used in the construction of the hollow globe for the radium. This alloy, a new discovery, will enable the size to remain as at present, although the weight will be greatly increased. Within the lower circumference of the globe there will be a solid gold collar. The great density of the gold will assist in confining within a narrow compass the gamma rays from the radium and so prevent injury of healthy tissues.

The present 2 Gm. bomb has been in use day and night for two and one-half years, and more than 600 patients have received more than 7,000 treatments. It has been found that

there is a great advantage in working at a greater distance from the patient, and this will be made possible by the greater quantity of radium in the new bomb. A more effective dose will be received at a greater depth below the surface. For five days of the week the present bomb is in constant use throughout the twenty-four hours. Three shifts of operators enable the work to be done. During the remaining days of the week, Saturday and Sunday, the bomb is used by the physicist and the surgeons for experimenal work, the need for extensive research into the questions of effect and dosage being always present.

The Regius Professor of Physic in the University of Cambridge

Dr. J. A. Ryle, physician to Guy's Hospital, has been appointed regius professor of physic in the University of Cambridge in succession to Sir Walter Langdon Brown, who retires on completion of his term of office. Dr. Ryle qualified as recently as 1913 and is one of the youngest physicians to attain this high position. He first became known by his investigations of diseases of the stomach, which are embodied in his book "Gastric Function in Health and Disease." "Ryle's tube" has become a household word in medicine.

PARIS

(From Our Regular Correspondent)

Sept. 9, 1935.

Alfred Fournier Institute for Treatment of Syphilis

In an article in the *Siècle médical* by Prof. Constantin Levaditi, director of the laboratory for the experimental study of syphilis, a plea is made for direct support of the Alfred Fournier Institute, which was opened several years ago in Paris. Up to the present, the work of this important center has been supported by a government supsidy of about $35,000 a year to the league for the prevention of venereal diseases. This appropriation is included in the budget of the ministry of public health. Levaditi fears that, in the current effort to curtail government expenses, this subsidy to the league for the prevention of venereal diseases will be discontinued. He therefore suggests that, in view of its importance as a prophylactic agency against syphilis, the institute should be made directly attached to the ministry of public health and in this way be independent of the sums which are allotted annually to the league.

No syphilologist who visits Paris should miss the opportunity of seeing this unique institution, named after the renowned syphilologist, whose clinics at the Hôpital Saint-Louis were visited by many Americans. The six-story building was opened last year and is not only equipped for prophylaxis and treatment but also has a laboratory for the experimental study of syphilis.

On the ground floor there is a dispensary for diagnosis and treatment. On the first floor are located a well selected library and the offices for the Antivenereal League. The second floor is devoted to serologic tests; a course for physicians and technicians is given here, under the supervision of the Faculty of Medicine of Paris. Lectures by the members of the department for syphilis of the Hôpital Saint-Louis constitute a part of the course. Thousands of serologic tests for syphilis are made annually in this laboratory, which has been transferred from the Pasteur Institute.

On the third floor are the laboratories for the experimental study of syphilis and for applied chemotherapy, which are under the supervision of Professor Levaditi aided by the physicist Paic. A monograph is published annually containing the research work of this department, which also was located formerly in the Pasteur Institute.

The fourth floor is occupied by a laboratory for the biologic and chemical control of antisyphilitic preparations. The younger Richet is now director of this laboratory.

It is evident that under a single roof one can find every aspect of syphilis, under the supervision of competent men. Opportunities are abundant for those who wish to study the clinical and experimental features of syphilis in the Alfred Fournier Institute.

Syphilis in Ethiopia

In the same issue of the *Siècle médical* is an interesting article on the widespread prevalence of syphilis in a country on which the eyes of the world are at present focused. It is not considered anything to be hidden from the public to have syphilis in Ethiopia. About half of the native population are syphilitic. Eight of ten children die in infancy as the result of the disease. Abortion and premature births are a frequent occurrence. The children who survive often present evidences of organic lesions, especially of pancreatic diabetes, according to Raoul Bernard, the author of this article. Much of the widespread prevalence of syphilis is the result of the teachings of some native physicians that injections during the early months of the disease are dangerous and give rise to recurrences. It is far wiser, they say, to permit the appearance of as many skin and mucosal manifestations as possible, as the cause is thus eliminated through the skin. The natives feel that such a result is much to be wished and do not consider that they can transmit the disease through these lesions. It is only in the tertiary stage that an Ethiopian accepts treatment with antisyphilitic remedies. A native who is cognizant of having been infected drinks the blood of goats and stays in a dark, superheated room. Overfeeding with the raw meat of goats is considered to be indicated for the first four or five months. The hermit life is then abandoned to take a drug called kousso and a series of hot baths.

When one reads this article, the difficulty of treating syphilis in Ethiopia is fully realized.

Report of Committee on Vaccination Against Tetanus

In the spring of 1935, Fredet, Duval, Gosset, Rouvillois and Bazy were appointed by the Société de chirurgie to ascertain whether vaccination against tetanus was practicable. This committee made its report at the July 3 meeting of the society.

Although the mortality from this form of wound infection has been greatly decreased as the result of prophylactic injections of the antitoxic serum, many patients are not given the benefit of such treatment because the possibility of tetanus is not taken into consideration. In the latter group belong ordinary and electrical burns, effects of exposure to cold, excoriations under plaster casts, and pin pricks. Statistics show that more than 70 per cent of the cases of tetanus follow insignificant injuries, and in an additional 6 per cent there is no demonstrable atrium. Many patients do not call a physician and, if they do consult one, he is not sure whether the antitoxin should be given as a prophylactic measure or whether he should abstain from giving it on account of possible serum reactions.

The committee recommended vaccination against tetanus as the best method to decrease the mortality. The antitetanic vaccine (anatoxin of the Pasteur Institute) is harmless, not being followed by any local or general reaction. Such vaccination is to be especially recommended for children and those who do manual labor. It can be given simultaneously with vaccination against typhoid-paratyphoid.

The antitetanic vaccination should be repeated every year or two. A person who has been vaccinated should never be given a prophylactic dose of antitoxin in case of injury or a burn. In war, antitetanic vaccination should be made obligatory.

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Can Tubercle Bacilli Pass Through Normal Kidneys?

The question whether tubercle bacilli can pass through normal kidneys has been debated since 1901, when Fullerton and Hillier maintained that normal kidneys were found at necropsy in patients suffering from pulmonary tuberculosis and in whose urine tubercle bacilli had been demonstrated by staining methods during life. With the introduction of modern diagnostic technic in urology, more proof is demanded that a renal or genital tuberculosis does not really exist when tubercle bacilli are found in the urine in patients without symptoms referable to the genito-urinary tract.

Two papers read at the June 29 meeting of the Société de biologie add to our knowledge of this question.

The bacteriologic studies were made at the Pasteur Institute and the urine specimens were obtained in various pulmonary tuberculosis services of the large Paris hospitals. In the paper by Saenz, Eisendrath, Costil and Sadettin, the urine of 100 patients with active pulmonary tuberculous lesions was examined by the staining method and by cultures. In the first series of fifty cases the stains of the urinary sediment were uniformly negative. In two cases, on scraping the surface of the culture medium eight days after inoculation, some acid-fast bacilli were found but the cultures after prolonged observation failed to develop a visible growth and the guinea-pig inoculation was negative. In the remaining forty-eight cases of this series the cultures failed uniformly to show any growth. In a second series of fifty similar cases (twenty-five men and twenty-five women) the sputum was positive on staining thirty-four times and the culture positive in thirty-six of forty-six sputums examined. Stains and cultures (observed for three months) of the urine were uniformly negative.

In the second paper, read by Pezzangora and Bacanu, a report was made of the examination of the urine by stain and culture in eighty-two cases of advanced pulmonary tuberculosis. In none of the total of 182 cases included in the papers were any symptoms referable to the genito-urinary organs present. In only one case of the eighty-two included in the second paper was the culture and stain of the urine positive. The renal function tests in this case were, however, negative. The patient had an extremely severe form of pulmonary tuberculosis and died on the day after the specimen of urine was obtained. There was no necropsy.

These two contributions add to the evidence brought out during the past ten years that the presence of tubercle bacilli in the urine should lead to a complete urologic examination, which will almost invariably reveal the presence of either a renal or a genital (male) tuberculous lesion.

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Fatal Accidents Following Prophylactic Injections of Antitetanus Serum

In a thesis submitted for graduation at the Faculté de médecine of Paris, fourteen fatal cases are reported in which antitetanus serum was given as a prophylactic. The deaths occurred immediately, soon after or much later after the injections. The principal symptoms were those of vasomotor nature, dyspnea, digestive and circulatory disturbances. These accidents occurred in individuals already sensitized by a previous injection or who presented an individual susceptibility to any serum. In the latter group were those who had suffered from urticaria, migraine, gout or asthma. Anaphylactic or colloidoclastic shock is the best explanation of these accidents. Those which occurred late might be attributed to delayed anaphylactic shock or to the toxicity of the serum.

Such accidents should not deter from the use of the serum as a prophylactic measure. If one suspects serum accidents, desensitisation must first be employed, but it is almost impossible to foretell which patients will react severely to the serum.

BERLIN

(From Our Regular Correspondent)

Aug. 12, 1935.

A Survey of Social Insurance

Dr. Schäffer, president of the reichs-versicherungsamt (the federal bureau of insurance), has published a general survey of the performances of the branches of German social insurance since it was first introduced. He states that all the branches of insurance taken together (excepting only unemployment insurance) have expended for performances, from the beginning of their creation up to 1934, 55,643,400,000 marks, equal in American money to from thirteen to twenty-two billion dollars, depending on whether the old prewar value of the mark at 23.8 cents or the present value at 40 cents is used as a basis of computation. German accident insurance expended, from 1885 to 1934, 7,660,000,000 marks, 742,000,000 of which was for therapeutic management and 6,500,000,000 in the form of cash benefits. The disability insurance administration expended from 1891 to 1934 more than 17,800,000,000 marks, 15,260,000,000 of which was for cash benefits and 1,200,000,000 for therapeutic procedures. Employees' insurance expended during the period of its existence (from 1913 to 1934) a total of 1,748,400,000 marks, 1,110,000,000 of which sum went for cash benefits. The health insurance administration expended from 1885 to 1934 more than 26,000,000,000 marks in the prosecution of its tasks, 24,800,000,000 of which was paid out for patients and for aid to puerperants. To these sums must be added expenditures for the performances of the federal miners' pension fund, amounting to 1,700,000,000 marks from 1924 to 1934 in the laborers' branch and 313,400,000 marks, during the same period, in the employees' branch. More than two thirds of the total population of Germany enjoy the benefits of social insurance. The present total annual budget of all branches of German social insurance may be placed at about 3,500,000,000 marks. The administration of social insurance requires the services of about 60,000 persons.

The Situation of the Health Insurance Societies

In a widely read article, Dr. Goerdeler, the federal commissar for price control, expressed his views recently on the contributions exacted from the members of the federally controlled krankenkassen, or health insurance societies, which have been included within the purview of the commissar for price control. Following investigation, Dr. Goerdeler has announced that he is opposed to any increase in the dues, or premiums, because such an increase at present would not be economically sound. The dues must not be increased above the 1933 schedule, for any increase of the present charges would deprive the workman of a part of his buying power needed and heretofore used for other necessaries. Any reduction of the workman's buying power would be injurious, because, in general, wages are too small, and would give rise to extraordinary shiftings of a financial nature. By reason of the huge sums collected from persons whose salaries and wages come within the limits of the operation of the compulsory health insurance laws (which in the aggregate for the German reich total about 20,000,000,000 marks, or $8,000,000,000, current exchange), 0.5 per cent would amount to 100,000,000 marks, so that, as a result of such an increase in the premium dues, 66,666,000 marks would be withdrawn each year that might have been used for other purposes, since the employees have to pay two thirds of the premium dues exacted from members of the health insurance societies, while the employers pay one third. The repercussions would be felt primarily by German industry, which would react on the workmen. Goerdeler expressed the opinion that, if a krankenkasse is at present unable to balance its budget, it must reduce its expenditures, and that the place to begin is the costs of administration. It might be necessary to reduce also the performances.

From other angles, the krankenkassen must be protected against any increases in their material administrative expenditures and against any augmentation of the prices for medicines, other therapeutic procedures and hospital care.

Dr. Martin, the director of the federal league of local krankenkassen, which is the largest league of krankenkassen, has stated that the trend of the finances of the local krankenkassen has caused him anxiety of late. For many local krankenkassen the situation has become unfavorable, owing in part to the increased expenditures arising from the higher birth rate and in part to the larger outlay for dental treatment, medicines, other therapeutic measures, and hospital treatment. A large portion of the increased expenditures had been brought about by the gratifying success of the new demographic policy of the federal government and the providing of work for the unemployed. In many krankenkassen current deficits can no longer be made up by drawing on credit balances of recent years, as these have become exhausted. For a number of krankenkassen it has been impossible to meet their obligations toward physicians, hospitals and other organizations. It seemed, however, that struggle as one might no further retrenchments in administration costs could be attained. The krankenkassen collect, in the form of premium dues, 5.25 per cent of the income of the insured, the part used for administrative costs amounting to only 0.55 per cent of the income of the insured. The deficit in some instances is nearly equal to the amount of the administrative costs. On the other hand, economies were possible with respect to hospital care and allowances for medicines. The insured should be urged to ask aid of the krankenkassen only when it is absolutely necessary, and they should be content with what the panel physician, on the basis of the principle that the patient must be restored to health as quickly and thoroughly as possible, prescribes. It should be borne in mind that the physician is in honor bound not to prescribe anything that is unnecessary. Hospital treatment should be limited by the physicians to the actually necessary cases.

Regulations Concerning Vaccination

The subject of smallpox vaccination has again been under discussion for some time. All the well known arguments have been rediscussed, and ways have been pointed out of combating vaccination injuries (THE JOURNAL, April 27, p. 1537). All these discussions have now been interrupted by the following regulations of the Reichsärzteführer, that is, the chairman of the federal medical organization, Dr. Wagner: "The question of vaccination is regulated by law, and the federal government has refused to make any changes in the regulations. The federal government has decided that the existing regulations shall be upheld. It is therefore inadmissible to criticize the measures for which the federal government has assumed responsibility, or to encourage agitation against the provisions controlling vaccination. I therefore order that all discussion of the vaccination question in medical and other professional journals be suppressed."

Professor Lydia Rabinowitsch-Kempner

Frau Prof. Lydia Rabinowitsch-Kempner, for many years editor of the tuberculosis journal and well known for her researches on tuberculosis, has died in her 64th year. She was the only female co-worker of Robert Koch. Later (from 1896 to 1899) she served as instructor in bacteriology at the Women's College in Philadelphia. Afterward she accepted Koch's invitation to do research, in the Koch Institute, on the occurrence of tubercle bacilli in butter and milk, on serum reactions in human and bovine tuberculosis, and on kindred subjects. From 1920 to 1933 she was the director of the Bacteriologic Institute in the Krankenhaus Berlin-Moabit, until, in 1933, under the new régime, she was forced to retire.

ITALY

(From Our Regular Correspondent)

July 31, 1935.

Tuberculosis of Bones

Under the chairmanship of Professor Putti of the University of Bologna, the second national convention for the study of osteo-articular tuberculosis was recently held at Cortina d'Ampezzo. The first topic was "Internal Foci in Osteo-Articular Tuberculosis in the Child," presented by Professor Frontali of Padua, who furnished evidence that osteo-arthropathy in the child is due in the majority of cases (up to 84 per cent) not to the bovine tubercle bacillus but rather to the human bacillus, and that the first localizations of this micro-organism are usually in the respiratory apparatus. The diffusion of the tuberculous virus takes place from internal foci (commonly intrathoracic) by way of the blood stream, giving rise to multiple localizations involving the skin, such as tuberculids and scrofuloderms. Contrary to the accepted belief, children affected with tuberculous osteo-arthropathy may spread the contagion among the children in their environment, by reason of the respiratory localizations, which are often overlooked. Sometimes the presence of a pulmonary focus exerts a decisive influence on the outcome of orthopedic treatment. The speaker is squarely opposed to Marfan's view that osteo-articular tuberculosis constitutes a region of greater resistance to specific pulmonary infection and pointed out that tuberculous spondylitis, for example, gives rise to mechanical conditions that favor the evolution of pulmonary types. He emphasized the importance of a unitary conception of tuberculous disease in the child, in which the osteo-articular disorder is only an episode. Rinonapoli, in his study of 2,300 patients with osteo-articular lesions of a tuberculous nature, found in 1,001 cases (43.52 per cent) a concomitant specific disorder of the respiratory apparatus.

The second topic concerned "The Radiodiagnosis of Osteo-Articular Tuberculosis." Professor Zanoli brought out the weak points of roentgenology in this special field, stating that radiography does not enable one to differentiate between post-traumatic arthritis and incipient tuberculosis or to interpret atrophy. The radiographic interpretation of a cervical lesion is difficult, while the diagnosis of sacrocoxalgia and of costal and sternal caries is uncertain. Nor has decalcification of the kneecaps any absolute value. The author holds that the radiographic pathologic lesions appear smaller than they actually are and that a caseous focus, in order to be radiovisible, must be larger than a coffee bean. The speaker mentioned also the difficulty of a differential diagnosis with respect to syphilis and osteomyelitis and concluded that, in spite of the great merits of radiology, one should not rely on this means alone but should utilize more particularly clinical methods in studying patients affected with osteo-articular tuberculosis.

Short Wave Therapy

An international convention, organized by the Accademia medica Lombarda, was held recently in Milan for the study of problems connected with the use of short waves in medicine.

Leroy (an engineer) of Paris presented the first paper, on "The Physical Aspects of Short Waves." He said there are arrangements of electrodes for carrying the action of the short waves to a certain organ. Modern apparatus enables the investigator to gain a perfect knowledge of the total energy supplied to the organism, but such determinations are not yet adapted to clinical application. Professor Vannoni of Padua discussed short wave therapeutic apparatus of the thermionic vacuum tube type. He pointed out that the essential difference between the various types of apparatus concerned the degree of utilization of the energy generated by the oscillator for therapeutic purposes and the frequency factor. He stated that

the possibilities are greatest therapeutically for the apparatus with an undamped oscillation, not so good for apparatus with half-wave rectified oscillations, and still less in apparatus with damped oscillations.

THE BIOLOGIC ACTION OF SHORT WAVES

Prof. Gino Bergami of Milan pointed out that the heat produced by short waves develops in the interior of the tissues, the intensity varying with the adaptability of the tissues to the heat waves. The speaker does not, however, deny the possibility that the short waves act on biologic material also with a mechanism different from the thermic action. Some experimental data suggest a specific action that is probably exerted through changes in the surface equilibrium. The author has reached the conclusion that the short waves exert on biologic systems complex actions explainable in the majority of cases by the selective thermic effect.

Professor Schliephake of Jena spoke on the selective effects of the short waves. The greater the effect due to high frequency, the greater will be the effect in the deeper tissues, and the greater will be the selective actions on every part, owing to the fact that every part is influenced separately. The heat produced by the short waves may be specific, owing to the different distribution of the heat, of which fact the behavior of the erythrocytes is a proof. In fact, the conductivity of the blood is greater under the influence of short waves than with long waves. The speaker stated that he had secured selective effects by irradiating the brain of the rabbit with waves of varying length and dosage. He observed similar results in cases of superficial suppuration, and also in a case of glioma of the cerebellum in a youth aged 19.

Professors Anclair and Halphen of Paris presented a paper on "Short Waves in Pyretotherapy." According to the speakers, short waves constitute a sure, rapid and practical means of producing an artificial fever. They hold that electropyrexia produces hyperemia in all the organs and develops a directly microbicidal action on certain micro-organisms with weak thermoresistance.

Professor Cignolini of Genoa spoke on the action of short waves on the vegetative nervous system. It is held that the short waves exert a depressive action on the sympathicus and an excitative action on the vagus. The speaker, however, is of the opinion that short waves act in relation to their intensity and that it is incorrect to speak of a selective depressive or excitative action on one or the other parts of the human organism. The action appears to be effected through the supplying of heat to the nerve cell, with effects on its metabolism.

Professor Izar of Messina discussed the use of short waves in internal medicine. The principal therapeutic results secured by various investigators concern disorders in the fields of vascular pathology, the digestive and the respiratory apparatus, and parasitic conditions. The results obtained in diseases of metabolism, however, were either negative or doubtful.

The Medicosurgical Society of Brescia

The Società medico-chirurgica Bresciana met recently at Brescia under the chairmanship of Professor Raverdino. Pagani of Cesa spoke on "The Anemias of the Nursling." If one wishes to determine the etiology of an anemia in a nursling and then to institute treatment, four criteria must be kept in mind: the age of the child, the size of the spleen, the nature of the previous diet, and the previous diseases. If one encounters anemic conditions in a child under 3 months of age, one should suspect at once congenital syphilis. If, after a child is a year old, one finds an enlarged spleen (whether or not accompanied by hepatomegalia), the diagnosis should be sought among the large group of leukemic and pseudoleukemic anemias. If, however, the spleen is little larger than normal, one must consider rickets, congenital syphilis, tuberculosis, digestive disturbances, pyodermitls and chronic bronchitis. Alimentation should be regarded as the most frequent cause of anemia in the child from 6 to 24 months old. Human milk contains but little iron, and too prolonged breast feeding may bring about an exhaustion of the child's supply of iron. Worse still if the child is kept for a long time on a diet of cow's milk, more or less diluted.

Diencephalic Disease

Professor Lunedei and Dr. Liesch of the Clinica medica in Florence presented recently to the Accademia medicofisica Fiorentina a series of articles in which they consider certain new aspects of the pathology of the diencephalon. Observing a number of cases in which there was an association with Friedreich's disease and familial diabetes, the speakers advanced the view that there existed a variety of heredo-ataxia with neurovegetative lesions, particularly of the upper centers of the middle diencephalon.

In a case of diabetes insipidus that intervened during the course of an attack of undulant fever the authors diagnosed a diencephalic involvement and pointed out that this type of complication had never been described before. Finally the speakers gave the history of a family in which the father was affected with gastric ulcer and Vaquez's disease, a daughter with the adiposogenital syndrome, and two sons with duodenal ulcer. They gave the data on which Cushing bases the theory of the diencephalic pathogenesis of gastroduodenal ulcer. Lunedei and Liesch, without drawing any definitive conclusions, emphasized the value of clinical observations of this type for the purpose of better defining certain aspects of the pathology of the diencephalon.

RIO DE JANEIRO

(From Our Regular Correspondent)

Aug. 15, 1935.

Etiology of Besnier-Boeck's Disease

Dr. Rabello Filho, in a lecture before the Sociedade de Medicina e Cirurgia of Rio de Janeiro, reviewed the literature on the clinical, roentgen and anatomicopathologic picture of Besnier-Boeck's disease and discussed its etiology. The speaker said that all the symptoms of Besnier-Boeck's disease may be caused by leprosy. The clinical picture of osseous and cutaneous sarcoid may be given by leprosy. Also the anatomicopathologic aspect of pure epithelioid growths unmixed with other types of cells proper of sarcoid may be given by leprosy. A specific rhinitis, nondifferentiable from sarcoid rhinitis, develops in leprosy with negative reaction for Mycobacterium leprae. Leprous rhinitis is not amenable to arsenical treatment but it is controlled by treatment with chaulmoogra esters, as in sarcoid rhinitis. Leprosy is associated in about 95 per cent of the cases with the development of adenopathy similar to sarcoid adenopathy from both clinical and histologic points of view. Leprosy, even in its more florid and bacilliferous forms, is associated with phenomena of cutaneous anergy to tuberculin, in sarcoid lesions. Sarcoid reactions with eosinophilia appear in the course of the treatment in both conditions. The cultures of both leprous and sarcoid tissues give the same type of bacteria; that is, streptothrix and gram-positive organisms. The inoculation of either leprosy or sarcoid tissues results in failure, in development of a special localized disease, with acid-fast organisms or, in rare cases, in tuberculization. The speaker does not believe in the existence of a special virus in the etiology of Boeck's disease in which the tubercle bacilli and the Mycobacterium leprae may be concerned. In cases with predominance of the leproid factor, probably Mycobacterium leprae is the etiologic factor. It is plausible that certain European races, especially persons in cold climates, as those in the northern regions of Europe, because of their

inherited resistance, develop a systematized disease, probably a modification of leprosy. The problem of sarcoid is an open field for study.

New Hospital in Rio de Janeiro

The Hospital Jesus, in an important location of Rio de Janeiro, will open in the near future for the care of poor children ranging in ages from birth to 13. It has 300 beds. The child is registered at the office for admission on the first floor and is examined by a physician, who decides whether the child shall be treated as an ambulatory or a hospitalized patient and in what department of the hospital. The wards are large, well ventilated and furnished with modern equipment of the best type. The departments for ambulatory patients, the special clinics and the department of dentistry are on the first floor. The departments of pediatrics and surgical orthopedics are on the second floor and that of surgery on the third floor. The wards on the third floor are air conditioned. At the rear of the building is a nursery. The milk supply is constantly supervised. There is no department for contagious diseases of children at present, but the directors have in mind to provide, later on, for this need.

The Care of Brazilian Children

Drs. Olinto de Oliveira, Dante Costa, Enéas Martins Filho, Adamastor Barbosa and some others are the directors of the social center Campanha Nacional pela Alimentação da Criança, which deals with the protection of poor Brazilian children. The central office is located at Rio de Janeiro, and there are branches in more than 500 municipalities, 47 per cent of which are located in the towns on the south side of the country. Milk and food are supplied to children in public stations of the institution. Several branches have been opened recently. The aim of the board of directors is to have branches in all the municipalities of the country.

BUCHAREST

(From Our Regular Correspondent)

Aug. 28, 1935.

The National Antituberculosis Congress

In June 1931, with the opening of the first antituberculosis congress, in the presence of the king, it was felt that a new epoch had begun in the campaign against tuberculosis, which is nowhere so important as in Rumania, where the number of lives claimed by this disease is excessive. The campaign failed, however, in consequence of economic difficulties, for neither the state nor the community supported the cause.

The first step toward realization of the good intention has been made by Professor Cantacuzino, who in 1933, at the second congress, announced that he had induced the government to grant all the net revenue of the state lotteries to the antituberculosis league. Then Cantacuzino took into his hands the organization of a nation-wide movement. He worked with great energy, but scarcely was he ready with the preparatory work when death overtook him. His work is being continued by C. Dimitriu and F. Costinescu, present minister of public hygiene, who convoked a committee of university professors to prepare the draft of a bill, which has been referred to the chamber of deputies.

The league in a short time made an immense advance in tuberculosis prophylaxis. Now it is in position to erect antituberculosis dispensaries in the larger towns of Rumania and to organize lectures for the rural population. Financial support is on the increase. While the state lotteries allotted the league 25,000,000 lei (about $160,000) in 1933, the subsidy from the same source was 65 million lei in 1934 and will amount to 72 million this year, to which the ministry of public health adds 40 millions. In the last two years the league has established sixteen new institutes. Beside these, it makes provision for every county hospital to have its own tuberculosis section and also for erecting three sanatoriums in the provinces of Muntenia, Banate and Oltenia. In addition the foundation of a sanatorium in Bugas, on the coast of the Black Sea, will be laid in September and an isolation hospital in Erbiceni and Vorniceni will be built.

The third congress was held in Jassy, July 16-19, in the National Theater. The opening speech was by Professor Olteanu, who eulogized the four leaders of the fight against tuberculosis, who have already died. These were Cantacuzino, Bals Gheroghe, Petrini and Radovici. Dr. Costinescu, minister of public health, then gave an account of the work of the league and sketched its future plans. Among the papers on the scientific program was one by T. Irinescu on the early diagnosis of tuberculosis. He said that by modern methods it is possible to diagnose pulmonary tuberculosis at such an early stage as to suggest the possibility of full recovery. Professor Balteanu sketched the importance of the dispensaries in Rumania, in which country the intelligence of the rural population is lower than in the western countries. Among such people the instruction given by the dispensaries in prophylaxis and treatment is inestimable.

On the second day, Balanescu, Daniello and Theodoreanu discussed the present state of gold therapy. Having ample personal experience, their presentation was valuable in this much disputed therapeutic method.

As indications for gold therapy they accept those given by Léon Bernard, the French apostle of gold therapy. The contraindications are general debility, hepatic insufficiency, renal disease and advanced intestinal lesions. They prefer to give small doses. They dissolve the gold preparation in calcium gluconate, which increases the tolerance. If the treatment is individualized and given under continuous clinical and laboratory control in well selected cases, chrysotherapy may favorably modify the course of certain pulmonary lesions.

The third day was devoted to climatotherapy. Rumania abounds in ideal climatic resorts. Marius Sturza read a paper on climatotherapy. It is a pity that as yet there are only a few well equipped sanatoriums, but if sufficient support should be granted by the government for erecting sanatoriums on sites magnificently endowed by nature, Rumania might have first place in attracting foreign patients. To this end, Rumanian universities should teach climatotherapy as a special subject and only such physicians should be engaged as are specialists in the treatment of tuberculosis and in climatotherapy. The observation of this rule would immensely add to the reputation of every sanatorium. Rumania is fortunate, Dr. N. Vladescu said, in having alpine, subalpine, subtropical and dry subtropical climates, high altitudes and sea coast resorts.

Between the sessions the members of the congress visited the medical institutes of Jassy: the faculty of medicine of the university, the tuberculosis dispensaries and the isolation hospital for contagious diseases. Excursions were arranged to some climatic resorts. The city magistrate entertained the guests with banquets, and a ball was given in the picturesque ballroom of the government building.

Foundation of an Orthopedic Society

Prior to the war only three medical societies existed—the Bucharest Medical Society, the Bucharest Surgical Society and the Jassy Medical Society. At present the number of scientific medical societies is sixteen. The latest addition is the Societatea Romana de Ortopedie, which was founded May 26, with thirty members. The president of the society is Dr. A. D. Radulescu, director of the Maria Regina Hospital. The honorary president is Prof. G. Balacescu, dean of the faculty of medicine of the Bucharest University.

Marriages

ROBERT FULTON CARMODY to Miss Lucy Mae Lawrence, both of Brookline, Mass., at Wolfeboro, N. H., August 17.

CLARENCE IVANHOE BUTTE JR., Matoaka, W. Va., to Miss Ruby Binford Hudson of South Hill, Va., June 15.

CHARLES NEIL ECKERSON, Charleston, W. Va., to Miss Susan Elizabeth Henderson of Milford, Va., June 15.

JAMES B. WOODS JR., Chinkiang Kiangsu, China, to Miss Elizabeth Blaine of Hangchow, June 22.

GEORGE HATCHER SNEAD, Richmond, Va., to Mrs. Elizabeth Simmerman Huff of Pulaski, August 17.

OLLIE ALLISON RYDER, Alexandria, Va., to Miss Elinor Temple Hill of Richmond, July 6.

LEWIS LITTLEPAGE JR., Norfolk, Va., to Miss Eleanor Mattingley of Remington, June 29.

CHARLES MORRIS NELSON to Miss Charlotte Mercer Purcell, both of Richmond, Va., July 16.

FRANK H. BOYD to Miss Helen Rowe, both of Enterprise, Ala., July 16.

Deaths

Joseph Clarence Keeler, Philadelphia; Jefferson Medical College of Philadelphia, 1896; professor of otology at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Laryngological, Rhinological and Otological Society and the American Otological Society; fellow of the American College of Surgeons; served during the World War; on the staffs of the Pottstown (Pa.) Hospital, the Newcomb Hospital, Vineland, N. J., and the Germantown Hospital; aged 64; died, September 17, in the Jefferson Hospital, of coronary occlusion.

John Ferdinand Morse ⊕ Nevada, Iowa; American Medical Missionary College, Chicago, 1899; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, L.R.F.P.S., Glasgow, 1910; fellow of the American College of Surgeons; at one time connected with the U. S. Public Health Service; for many years on the staff of the Battle Creek (Mich.) Sanitarium, and formerly superintendent of the Hinsdale (Ill.) Sanitarium; aged 63; medical superintendent of the Iowa Sanitarium and Hospital, where he died, August 8, of cerebral hemorrhage.

Edward John Meyer, Buffalo; University of Buffalo School School of Medicine, 1891; member of the Medical Society of the State of New York; professor of surgery, emeritus, at his alma mater; fellow of the American College of Surgeons; president of the board of managers of the Buffalo City Hospital; consulting surgeon to the Emergency Hospital of the Sisters of Charity, Deaconess Hospital and the Millard Fillmore Hospital; aged 66; died, September 13, of cerebral hemorrhage and cardiovascular disease.

George Joseph McKee ⊕ Pittsburgh; Harvard University Medical School, Boston, 1906; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staffs of the Columbia Hospital, Wilkinsburg, Pa., and the Allegheny General Hospital; aged 55; died, August 15, in Point Chautauqua, N. Y., of coronary sclerosis and edema of the lungs.

Ernest Russell Kelsey ⊕ Albuquerque, N. M.; Maryland Medical College, Baltimore, 1901; member of the Connecticut State Medical Society; fellow of the American College of Surgeons; served during the World War; formerly on the staffs of the Charlotte Hungerford Hospital, Torrington, Conn., and the Litchfield County Hospital, Winsted, Conn.; aged 61; died, June 26, of coronary thrombosis.

Isaac Louis Polozker ⊕ Detroit; Detroit College of Medicine, 1897; professor of psychiatry at his alma mater; member of the American Psychiatric Association; fellow of the American College of Physicians; on the staffs of St. Mary's, Providence, Eloise and Receiving hospitals; director of the psychopathic clinic of the Recorder's Court; aged 61; died, August 21, of coronary thrombosis.

John B. Brickell ⊕ Emporia, Kan.; University of Tennessee Medical Department, Nashville, 1893; member of the Associated Anesthetists of the United States and Canada; past president and secretary of the Lyon County Medical Society; on the staffs of the Newman Memorial County Hospital and St. Mary's Hospital; aged 71; died, August 31, of coronary thrombosis.

Charles F. Unterkircher, Saline, Mich.; Eclectic Medical Institute, Cincinnati, 1886; member of the Michigan State Medical Society; formerly member of the school board; aged 76; died, July 18, in the University Hospital, Ann Arbor, of carcinoma of the prostate and ascending pyelonephritis.

Stanley A. E. Brallier ⊕ Conemaugh, Pa.; Medico-Chirurgical College of Philadelphia, 1899; formerly member and president of the board of health of Conemaugh; aged 66; died, August 29, in the Conemaugh Memorial Hospital, Johnstown, of cardiovascular disease and coronary thrombosis.

Lewis Mann Silver, New York; Bellevue Hospital Medical College, 1885; member of the Medical Society of the State of New York; fellow of the American College of Physicians; on the courtesy staff of the Babies' Hospital; aged 75; died, August 14, of a fractured skull, as the result of a fall.

Byron Corydon Eades ⊕ Conneaut, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; past president and secretary of the Ashtabula County Medical Society; on the staff of the Brown Memorial Hospital; aged 58; died, July 29, of chronic myocarditis.

Oliver H. Jackson ⊕ Meadville, Pa.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; past president of the Crawford County Medical Society; on the staff of the Meadville City Hospital; aged 60; died suddenly, July 23, of cerebral hemorrhage, while on a business trip in Warren.

Clarence Bartlett, Philadelphia; Hahnemann Medical College of Philadelphia, 1879; professor emeritus of medicine at his alma mater; formerly on the staffs of St. Luke's Hospital, Children's Hospital and the Abington (Pa.) Memorial Hospital; aged 77; died, August 27, of heart disease.

Max Dreyfoos ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1902; formerly assistant professor of pediatrics, University of Cincinnati College of Medicine; on the staff of the Jewish Hospital; aged 58; died, September 3, of malignant hypertension, chronic nephritis and uremia.

James Harrison O'Neil, Mooers, N. Y.; University of Vermont College of Medicine, Burlington, 1890; health officer of Mooers; for two years county school commissioner; aged 68; died, August 26, in the Champlain Valley Hospital, Plattsburg, of cerebral hemorrhage.

William Carter Person, Orlando, Fla.; Missouri Medical College, St. Louis, 1873; member of the Florida Medical Association; past president of the Orange County Medical Society; Confederate veteran; aged 89; died, September 14, of coronary sclerosis and arteriosclerosis.

Cyrus Alvin Gardner ⊕ Kendallville, Ind.; Rush Medical College, Chicago, 1902; past president of the Noble County Medical Society; on the staff of the Lakeside Hospital; aged 60; died, August 26, of coronary thrombosis, arteriosclerosis and aortic aneurysm.

Frank Ballard Hunt, Fairfax, Vt.; University of Vermont College of Medicine, Burlington, 1913; member of the Vermont State Medical Society; aged 49; died, July 12, in St. Albans (Vt.) Hospital, of mesenteric embolism, cholecystitis and cholecystectomy.

Thomas W. Toler, Astoria, Ill.; Northwestern University Medical School, Chicago, 1892; aged 64; died, July 10, in the Peoria (Ill.) State Hospital, of bronchopneumonia, following a fracture of an arm received in a fall and burns incurred the following day.

William Y. MacKenzie, Weatherford, Texas; Pulte Medical College, Cincinnati, 1881; New York Homeopathic Medical College and Flower Hospital, 1911; member of the State Medical Association of Texas; aged 74; died, July 31, of Parkinson's disease.

Marcus Seidmann ⊕ Newark, N. J.; Julius-Maximilians-Universität Medizinische Fakultät, Wurzburg, Bavaria, Germany, 1886; on the staffs of St. James Hospital and the Newark Eye and Ear Infirmary; aged 75; died, September 6, of heart disease.

Harry Merritt Bradley, Manchester, Iowa; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; member of the Iowa State Medical Society; health officer of Manchester; aged 66; died, August 11.

Benno George Troidle, Albany, N. Y.; Albany Medical College, 1898; member of the Medical Society of the State of New York; aged 58; died, August 5, in St. Peter's Hospital, of intraventricular hemorrhage and pyelonephrosis.

Francis Henry Callow, Mount Morris, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; member of the Michigan State Medical Society; aged 82; died, August 20, of cerebral hemorrhage.

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Ira A. Keiter, Wiconisco, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; aged 72; died, July 26, in the Shamokin (Pa.) State Hospital of shock, following an operation for strangulated hernia.

John Nixon, Farmland, Ind.; Medical College of Ohio, Cincinnati, 1882; member of the Indiana State Medical Association; aged 76; died, August 24, of a hemorrhage due to a skull fracture received in a fall.

Alden Alguire ✠ Belvidere, Ill.; Rush Medical College, Chicago, 1897; member of the Radiological Society of North America; past president of the Boone County Medical Society; aged 70; died, August 23.

Edward James Wilson, Columbus, Ohio; Long Island College Hospital, Brooklyn, 1879; past president of the board of education; aged 79; died, August 28, of myocardial insufficiency and pulmonary edema.

Russell Edward Phillips ✠ Warsaw, Ind.; Indiana University School of Medicine, Indianapolis, 1929; secretary of the Kosciusko County Medical Society; aged 30; died, August 29, of bronchopneumonia.

Gebhard L. Ullman, Albany, N. Y.; Albany Medical College, 1871; member of the Medical Society of the State of New York; aged 84; died, August 9, of angina pectoris and chronic myocarditis.

Van Buren Thorne ✠ New York; New York University Medical College, 1896; aged 65; died suddenly, August 1, of angina pectoris while spending his vacation at Point Lookout, Long Island, N. Y.

Arthur Alonzo Stern, Sacramento, Calif.; University of California Medical Department, San Francisco, 1896; member of the California Medical Association; aged 68; died, July 11, of myocarditis.

Hamilton Forline, Los Angeles; Northwestern University Medical School, Chicago, 1893; member of the California Medical Association; aged 70; died, July 6, of nephritis and arteriosclerosis.

Robert F. McNally ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1928; on the staffs of the Bethany Deaconess Hospital and St. Mary's Hospital; aged 32; died, August 21, of endocarditis.

Liston Paine, Flushing, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1910; served during the World War; aged 53; died suddenly, September 1, in the Flushing Hospital.

Edward Horace Cleveland, Middleboro, Mass.; New York Homeopathic Medical College and Flower Hospital, 1915; also a clergyman; aged 79; died, August 5, of carcinoma of the cervical glands.

William Townsend Brown ✠ Valmora, N. M.; Hahnemann Medical College and Hospital, Chicago, 1893; medical superintendent of the Valmora Sanatorium; aged 65; died, August 29.

Thomas Deveaux Hall, Saulsbury, Tenn.; Tulane University of Louisiana Medical Department, New Orleans, 1908; aged 56; died, July 14, of chronic nephritis and mitral insufficiency.

Henry Albert Johnson, Glendale, Calif.; John A. Creighton Medical College, Omaha, 1908; served during the World War; fellow of the American College of Surgeons; aged 49; died, July 17.

Clarence Hopkins Mercer ✠ Ansonia, Conn.; Maryland Medical College, Baltimore, 1905; aged 62; died, August 13, in the Griffin Hospital, Derby, following an operation for appendicitis.

Karl Herz, Chicago; Deutsche Universität Medizinische Fakultät, Prague, Austria, 1884; an affiliate Fellow of the American Medical Association; aged 75; died, September 18.

George Stephen Stell, Brownsville, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1889; aged 68; died, August 13, of myocarditis and chronic nephritis.

Clayton Eugene Wheeler, Los Angeles; University of Alabama School of Medicine, 1912; aged 46; was shot and killed, August 4, when his shotgun accidentally exploded.

Earl Lester Kirk, Louisville, Ky.; University of Louisville School of Medicine, 1929; aged 31; died, August 13, in the Waverly Hill (Ky.) Sanatorium, of miliary tuberculosis.

Charles E. Smith, Ledger, N. C.; University of Tennessee Medical Department, Nashville, 1882; formerly county coroner and county health officer; aged 76; died, August 16.

Howard Herman Heinrich ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1912; aged 51; was drowned, August 4, in Lake Erie when his rowboat capsized.

Frank De Witt Weldon, Grand Harbour, N. B., Canada; Maryland Medical College, Baltimore, 1912; aged 60; died, May 20, of an overdose of chloral hydrate.

Rene Raymond, Ste. Scholastique, Que., Canada; Laval University Faculty of Medicine, Quebec, 1926; aged 34; died, July 10, of tuberculosis of the lungs.

Charles Parshall Smith Jr. ✠ Chester, N. Y.; Long Island College Hospital, Brooklyn, 1892; aged 64; died suddenly, August 14, of cerebral hemorrhage.

Eugene Robert Hynard, Cedar Grove, N. J.; Baltimore University School of Medicine, 1903; aged 63; died, August 4, of arteriosclerosis and endocarditis.

Otto Floyd Rogers, Bloomington, Ind.; University of Louisville (Ky.) School of Medicine, 1900; aged 63; died, August 30, of cirrhosis of the liver.

Allan Beetem Dalton, Chester, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1921; aged 41; was found dead in a swimming pool, July 11.

Thomas M. Ryall, Pittsburgh; Jefferson Medical College of Philadelphia, 1883; aged 73; died, August 9, of acute dilatation of the heart and cholecystitis.

Paul Richard Oeser, Lawrence, Mass.; Boston University School of Medicine, 1904; aged 56; was found dead in bed, August 2, of cerebral hemorrhage.

George Edgar Bothwell, Mayport, Fla.; Atlanta College of Physicians and Surgeons, 1903; aged 59; died, September 9, of a self-inflicted bullet wound.

Loranza Frank Jones, Richmond, Ky.; Louisville and Hospital Medical College, 1908; aged 53; died suddenly, August 1, of heart disease and pneumonia.

Frederick Harry Heck ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 65; died, July 25, of carcinoma of the prostate.

Wencesclaus James Stech ✠ Council Bluffs, Iowa; John A. Creighton Medical College, Omaha, 1913; aged 46; died, August 22, of heart disease.

John R. Harrold, Hartford City, Ind.; Medical College of Fort Wayne, Ind., 1881; Civil War veteran; aged 87; died, August 24, of epithelioma.

Mahlon Mills Wall, Marion, Ind.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 86; died, August 7, of cerebral hemorrhage.

Nicholas Albrecht ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1901; aged 56; died, August 6, of cirrhosis of the liver.

Samuel Henry Kanner, New York; Columbia University College of Physicians and Surgeons, New York, 1905; aged 53; died, September 3.

John Eugene Folsom, Oakland, Calif.; George Washington University School of Medicine, Washington, D. C., 1916; aged 56; died July 31.

J. W. Burns, Appleton, Wis.; Rush Medical College, Chicago, 1870; aged 89; died, August 14, in Two Harbors, Minn., of pneumonia.

Elisha C. Pace, Osawatomie, Kan.; American Medical College, St. Louis, 1888; aged 73; died, July 31, of chronic valvular cardiac disease.

Leslie A. Blankenbeker, Jeffersontown, Ky.; Louisville Medical College, 1892; aged 65; died, August 14, of cerebral hemorrhage.

George Washington Lutz, Indianapolis; Medical College of Ohio, Cincinnati, 1870; aged 87; died, August 21, of myocarditis.

Alva Jones, Sapulpa, Okla.; Kentucky School of Medicine, Louisville, 1892; aged 67; died, August 1, in a local hospital.

Theodore Winfield Workman, Akron, Ohio; Medical College of Ohio, Cincinnati, 1879; aged 79; died, September 1.

Charles Wesley Wright ✠ Fort Payne, Ala.; Medical College of Alabama, Mobile, 1893; aged 69; died, July 13.

Peter James McGrath, Lynwood, Calif.; Albany (N. Y.) Medical College, 1895; aged 62; died, July 2.

James D. M. Powell, Alexander, Ark. (licensed in Arkansas in 1903); aged 77; died, August 5.

Albert Bird Royal, Pasadena, Calif.; Rush Medical College, Chicago, 1877; aged 81; died, July 23.

Thomas Slater Walker, Dallas, Texas; Dallas Medical College, 1903; aged 77; died, July 17.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Nu-Vim.—Nu-Vim Chemical Co., Port Gibson, Miss. Composition: Essentially epsom salt, an iron compound, a laxative plant drug extract, alcohol (1.7 per cent) and water. For constipation, indigestion, blood, stomach, kidney and liver disorders. Fraudulent therapeutic claims.—[*N. J. 22325; November, 1934.*]

Seven A's Pain Killer.—Clyde Collins Chemical Co., Memphis, Tenn. Composition: Essentially wintergreen and a light petroleum distillate such as gasoline. Fraudulent therapeutic claims.—[*N. J. 22327; November, 1934.*]

Cly-Tone Pain Killer.—Clyde Collins Chemical Co., Memphis, Tenn. Composition: Essentially wintergreen (3 per cent) dissolved in a petroleum distillate such as gasoline. Fraudulent therapeutic claims.—[*N. J. 22327; November, 1934.*]

Ru-Co Skin Remedy.—Clyde Collins Chemical Co., Memphis, Tenn. Composition: Essentially wintergreen (11.6 per cent), incorporated in petrolatum. For pimples, bumps, itch, eczema, old sores, etc. Fraudulent therapeutic claims.—[*N. J. 22327; November, 1934.*]

Wyeth's Wycones.—John Wyeth & Bro., Philadelphia. Composition: Essentially oxyquinoline sulphate, 1 grain, boric acid, 5 grains, salicylic acid, 0.9 grain, and cocoa butter, 32 grains per cone. For leukorrhea and other female disorders. Fraudulent therapeutic claims.—[*N. J. 22329; November, 1934.*]

Skin Ease.—Osteen & Co., Inc., Orlando, Fla. Composition: Essentially salicylic acid (22.5 per cent) in an ointment base including lard. For eczema, itch, piles, blistered feet, etc. Fraudulent therapeutic claims.—[*N. J. 22332; November, 1934.*]

Kelp-a-Malt.—Kelpamalt Co., New York. Composition: Ground vegetable material, starch, malt extract and 14.9 per cent of ash (mineral matter) including compounds of copper, manganese, iron, magnesium, calcium, potassium, silica, phosphorus and iodine. Misbranded because of false and misleading claims for composition and also because of false and fraudulent therapeutic claims.—[*N. J. 22338; November, 1934.*]

(Penslar) Tonic Hypophosphites Compound.—Penslar Co., Inc., St. Louis. Composition: Essentially calcium, potassium, iron, manganese, quinine and strychnine salts, principally hypophosphites, sugar and water. For run-down conditions, etc. Fraudulent therapeutic claims.—[*N. J. 22342; November, 1934.*]

Sweetrest Tablets.—Sweet Rest Co., St. Louis, Evanston, Ill., and Cedar Rapids, Iowa. Composition: 5 grain aspirin tablets. For pains, fever, lumbago, toothache, earache, la grippe, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 22345; November, 1934.*]

Naturade Tablets.—Swest Rest Co., St. Louis, Evanston, Ill., and Cedar Rapids, Iowa. Composition: Essentially phenolphthalein, plant drug extracts including nux vomica and a laxative, with calcium sulphate. For stomach, liver, kidney and bowel disorders, dizziness, malaria, rheumatism, skin diseases, etc. Fraudulent therapeutic claims.—[*N. J. 22345; November, 1934.*]

Granny's Cough Syrup.—Hennafoam Corp., New York. Composition: Plant drug extracts, potassium bromide, an ammonium compound, a chloride, a small quantity of a sulphate, chloroform (0.36 minim per fluid ounce), menthol, gum sugars and water. Misbranded because statement on label, "Compound Syrup of Flaxseed, Rock Candy and Licorice Mentholated," was false; misbranded, also, because chloroform percentage not declared; misbranded, further, because of fraudulent therapeutic claims.—[*N. J. 22346; November, 1934.*]

Bostwick's White Pine Cough Syrup.—Bostwick Bros., Atlanta, Ga. Composition: Essentially plant drug extracts including an alkaloid-bearing drug and wild cherry, chloroform, alcohol and water. Misbranded because ingredients not derived from white pine and alcohol and chloroform percentages not declared; misbranded, further, because of fraudulent therapeutic claims.—[*N. J. 22348; November, 1934.*]

Jopp's Salakine Tablets.—Jopp's Drug Co., Inc., Buffalo. Adulterated because it contained less acetphenetidin and acetanilid per ounce than claimed; misbranded because of false and misleading statements regarding amounts of these drugs present.—[*N. J. 22355; December, 1934.*]

Cerax Tablets.—McKesson & Robbins, Inc., Bridgeport, Conn. Composition: In each tablet 0.96 grain of acetanilid, with camphor, a bromide of a cinchona alkaloid and a laxative. Misbranded because label did not declare amount of acetanilid present.—[*N. J. 22357; December, 1934.*]

O. J.'s Beauty Lotion.—O. J.'s Beauty Lotion Co., Inc., Shreveport, La. Composition: Essentially water, alcohol (32.8 per cent) and small amounts of mercuric chloride, zinc sulphate, salicylic acid and witch hazel. For pimples, liver spots, eczema, dandruff, ringworm and tetter. Fraudulent therapeutic claims.—[*N. J. 22362; December, 1934.*]

Musbro Skin Ointment.—Standard Veterinary Products Co., New York. Composition: Petrolatum, sulphur and a lard-like material. For eczema. Fraudulent therapeutic claims.—[*N. J. 22363; December, 1934.*]

Watkins' Liniment.—Watkins Medicine Co., Cherokee, Kan. Composition: Turpentine oil, eucalyptol, small amounts of wintergreen, with chloroform, alcohol (62 per cent by volume) and water. Fraudulent therapeutic claims.—[*N. J. 22365; December, 1934.*]

Earle's Palatable Hypo-Col.—Earle Chemical Co., and E. I. Runner Co., Inc., Wheeling, W. Va. Composition: Calcium, manganese and sodium hypophosphites, ferric citrate, quinine, strychnine, alcohol, sugar, water and flavoring. Misbranded because of false claim on label that it contained gaduol, a cod liver extract, and because of fraudulent therapeutic claims as a "tonic."—[*N. J. 22370; December, 1934.*]

Earle's Anti-Gas Tablets.—Earle Chemical Co., and E. I. Runner Co., Inc., Wheeling, W. Va. Composition: Calcium and magnesium carbonates, sugar and peppermint oil. For indigestion, auto-intoxication, acidosis, etc. Fraudulent therapeutic claims.—[*N. J. 22370; December, 1934.*]

Noz-Eez.—Strong's Laboratories, Portland, Ore. Composition: Essentially boric acid (65.8 per cent), starch (29.5 per cent) and traces of camphor, menthol and oxyquinoline sulphate. For nose and throat disorders, asthma, hay fever, catarrh, etc. Fraudulent therapeutic claims.—[*N. J. 22371; December, 1934.*]

Pineforus.—Pineforus Co., Chicago. Composition: Essentially cotton balls saturated with volatile oils including menthol, camphor and eucalyptol (9 per cent), with 91 per cent of mineral oil. Pineforus No. 1, for hay fever and asthma, insomnia, whooping cough, croup, etc.; Pineforus, No. 2, for catarrh, bronchitis, la grippe, influenza. Fraudulent therapeutic claims.—[*N. J. 22372; December, 1934.*]

Acco Aspirin Tablets.—Feldman-Martin Co., New York. For painful periods, toothache, earache, headache, rheumatism, lumbago, sciatica, etc. Fraudulent therapeutic claims.—[*N. J. 22374; December, 1934.*]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

USE OF DIPHTHERIA TOXOID

To the Editor:—There is more or less confusion as to immunization against diphtheria. Having just read an editorial comment and noting only 79.8 per cent of negative Schick tests with one dose of alum precipitated toxoid, I wonder why two doses of the alum precipitated toxoid should not be given, to get something near the negation that should be obtained. Three doses of the regular toxoid and from 95 to 97 per cent of negative Schick tests would seem to be much superior to the one dose of alum precipitated toxoid. Please comment on this very important problem.

CHARLES H. EMERY, M.D., Bedford, Ind.

ANSWER.—About a year ago (*Am. J. Pub. Health*, November 1934) McGinnes, Stebbins and Hart reported on their experience with alum precipitated toxoid. "Seventeen hundred and sixty-five Schick positive individuals were given one dose of 0.5 or 1 cc. of alum precipitated toxoid of a potency of from 12.5 to 31.5 flocculating units per cubic centimeter and retested two months later; 94.4 per cent of these were found to have been rendered Schick negative." Among 1,026 individuals originally Schick positive, ranging in age from 4 years upward, 96.3 per cent were Schick negative two months after receiving one dose of alum precipitated toxoid.

In many instances there have been reports showing that from 98 to 100 per cent of Schick positive children were rendered Schick negative within two to six months after receiving 1 cc. of alum precipitated toxoid given subcutaneously.

Park has stated that this procedure can be relied on to produce a Schick negative condition within two months in 95 per cent of the children so treated.

It is now more or less generally agreed that a single dose of alum precipitated toxoid administered subcutaneously is as efficient as two doses of untreated toxoid, provided the alum precipitated toxoid is of sufficient potency.

From the foregoing it is obvious that a single injection for the purpose of diphtheria immunization has many advantages over former procedures in which two or three administrations of the immunizing agent were given.

NORMAL PHYSIOLOGIC STANDARDS OF BLOOD PRESSURE, VISION, HEARING AND ALBUMINURIA

To the Editor:—In Queries and Minor Notes in THE JOURNAL, June 15, page 2202, under "Normal Blood Pressure" a table appears with the statement: "The most extensive and accurately determined averages of normal are those prepared for and by life insurance underwriters." May I ask that you advise me the exact source with reference, that I may read the data connected with the original table? I am at the present time engaged in the preparation of a memorandum for use of doctors in various parts of the country who make physical examination of employees, wherein we are giving service to the assured, our policyholder, in completing arrangements for physical examination. The most important purpose of these studies is the detection of disease conditions of such minor consequence as yet that they may be corrected, and the placement of men in occupations wherein the hazard will not be too great because of some physical disability which they have. My memorandum is to serve in the discussion with the doctors concerning the common abnormalities found to be present and setting up some standard which they may use of normal variation, the limit beyond which medical study should be undertaken to determine the significance of the finding, and the danger limit indicative of a serious medical condition warranting postponement of employment until medical study is completed, with classification of employment depending on the recommendation of the doctor. You will agree that such standards have not been widely disseminated, yet the examining doctor is necessarily faced with the problem of deciding for himself in the consideration of each employee whom he studies. Some uniformity between examiners is necessary, as indicated by the exceedingly wide variation shown between their conclusions. As one of the factors, I have considered blood pressure, based on a rule that the systolic blood pressure is average normal of 120 at the age of 20, with an increase of one-half point for each additional year, and that the diastolic blood pressure is 80 at the age of 20, with an increase of one-fourth point for each additional year. I have considered that normal limits extend from 10 per cent below to 10 per cent above the calculated figure for a given age, and that danger limits are from 20 per cent below to 40 per cent above the average calculated figure. I have considered that normal limits of diastolic pressure are from 10 per cent below to 10 per cent above the average calculated figure, and that danger limits are beyond 20 per cent below and 20 per cent above the average calculated figure. Thus, there is a slight variation from those which you have quoted. I do not claim authority for mine beyond my experience and conversation with various doctors throughout the country. If your figures are based on the collective judgment of a number of competent men, it would be much wiser that I use them than mine, I would therefore request your advice.

Vision.—For the purpose of the same memorandum, can you advise me what degree of departure in distant vision from 20/20 may be ignored on physical examination, with what reading in either eye should the patient have refraction, and what limit of vision in either eye should be accepted in driving trucks or stages?

Hearing.—For the same purpose, what deficiency in hearing from 20/20 should warrant sending a patient to an aurist for study, and what limit should be considered safe in such occupation as driving trucks and stages?

Urine.—For the same purpose, what limit for albumin and sugar in milligrams per hundred cubic centimeters may be disregarded on routine physical examination?

R. N. GRAY, M.D., Hartford, Conn.

ANSWER.—The tabulation that appeared in the reply to the query quoted was derived from data in the Proceedings of the Association of Life Insurance Medical Directors of America. These proceedings report the cooperative studies of the medical directors and actuaries of the majority of the American life insurance companies and represent the results of many thousands of examinations of presumably normal, healthy men, all over the country and from all walks of life. Symonds reported such investigations in these Proceedings in 1923 and also in THE JOURNAL, Jan. 27, 1923, page 232. The data in the table, however, are much more recent. The increase in normal systolic arterial tension in these figures is less than 0.5 mm. for each year from age 20 onward; in fact, there is but 1 mm. rise between the ages 20 and 30. The diastolic tension increases even more slowly. The normal limits are considered to be within plus and minus 10 mm. (not per cent) of the statistical average normal systolic tension. Any abnormality beyond these limits should be considered as suggestive of diseases, especially if observed on repeated examinations. The upper range of normal variation for the diastolic tension is best considered to be even less: 5 mm. above the statistical norm. The maximum normal diastolic tension, irrespective of age, should not exceed 90 mm. of mercury. The diastolic tension, which should be read at the fourth phase and not at the fifth, is much more significant as an index to the state of the arterial tone than the systolic tension. It is also notably less fluctuant with emotional stress. What were formerly considered insignificant increases in the diastolic tension are now being viewed with alarm by life insurance medical directors, especially when observed in younger applicants for insurance (Stieglitz, E. J.: Abnormal Arterial Tension, New York, National Medical Book Company, 1935). It should be emphasized that hypertensive arterial disease begins insidiously and asymptomatically and that in many respects the earlier the age of onset of hypertension, the more severe and rapid is the course of the disease. This is not only true of hypertensive arterial disease but also characteristic of the other degenerative disturbances of later life, such as diabetes, gout and nephritis. In the problem as outlined in the query, the responsibility is not limited to the discovery of existing disease but includes detection of disease potentialities that notably predispose to future disability.

In connection with the criteria of normal and/or safe vision, it may be said that vision less than 20/20 in either eye should indicate refraction of the applicant's eyes. With corrective lenses the minimum acceptable vision is 20/30 in either eye; such vision in both eyes would not be safe for drivers of trucks or busses. Notable disparity of vision of the two eyes indicates the need for further investigation, and loss of one third of the field of vision in either eye contraindicates employment in the occupations mentioned.

The simplest criterion of normal hearing is the ability to hear distinctly the whispered voice at 20 feet in a quiet room with either ear separately. If the whispered voice is not heard at 15 feet or less, further study of the impairment should be required. Clark and Drinker (Industrial Medicine, National Medical Book Company, 1935) suggest using a dollar Ingersoll watch at 36 inches as a measure of normal hearing.

Not more than 10 mg. of albumin per hundred cubic centimeters of urine can be disregarded. The Kingsbury-Clark sulphosalicylic acid method of quantitative albumin determination is the most rapid, accurate and economical procedure for the type of examinations contemplated; the standards for this test may be obtained from the Fales Chemical Company, Cornwall Landing, N. Y. More than 10 mg. of protein per hundred cubic centimeters of urine warrants further study, directed particularly toward the elucidation of the cause of the proteinuria. If it should be convincingly proved to be wholly due to orthostatic or postural albuminuria, the risk of acceptance for employment is entirely justified. Should the proteinuria be associated with pyuria, employment should be postponed until the pyuria is entirely eradicated, whether it is due to pyelitis, cystitis or gonorrheal urethritis. Hematuria occurring with the proteinuria warrants rejection for employment. Glycosuria exceeding 20 mg. per hundred cubic centimeters of urine should cause rejection for employment or at least comprehensive study.

It is felt that such industrial employment examinations have been too lax in their requirements in the past. In positions of responsibility where the lives of the employee and others are in possible jeopardy, as in driving motor vehicles, physical fitness should be essential.

INTERFERIN

To the Editor:—Should not something be said in THE JOURNAL about Interferin?

JOSEPH M. JACKSON, M.D., Pittsburgh.

ANSWER.—Interferin, "the first American made abortive paste," is said to be ". . . an oil and fat-free base containing iodine and iodine compounds, several astringents and antiseptics." A report by the Bureau of Investigation on Abortifacient Pastes (THE JOURNAL, June 11, 1932, p. 2155) noted that a similar preparation, Provocol (sold in this country as Leunbach Paste), contained olive oil, cacao butter, potassium hydroxide, sodium hydroxide, iodine, potassium iodide, tincture of benzoin, tincture of myrrh, thymol and water. Wolf (*Monatschr. f. Geburtsh. u. Gynäk.* **88**:442 [Aug.] 1931) claimed that another similar product, Interruptin (also cited in the report), was a soft paste containing iodine, thymol, camphor and the "active principles" of crocus, rosemary, eucalyptus, myrrh, "etc."

In a short period the use of abortifacient pastes by German physicians resulted in twenty-five deaths, two of which occurred a few minutes after the injection. Engelmann (*Deutsche med. Wchnschr.* **58**:166 [Jan. 29] 1932; *Zentralbl. f. Gynäk.* **56**:119 [Jan. 9] 1932) reviewed the dangers of using Interruptin and noted deaths due to fat and air embolism. Döderlein (cited by Riddell: *J. Obst. & Gynec. Brit. Emp.* **39**:1 [No. 1] 1932) questioned the validity of the cited cause of these deaths and indicated favorable results with Interruptin. Experimentally, poisoning from the paste itself has been noted by Kustner (*Zentralbl. f. Gynäk.* **76**:754 [March 19] 1932. D'Amour and Kiven (*Am. J. Obst. & Gynec.* **29**:503 [April] 1935) reported six deaths among forty-four rats aborted with Leunbach Paste. These deaths appeared to be due to a generalized abdominal infection. D'Amour and Kiven found that either the iodine or the soap contained in the Leunbach Paste was an effective abortifacient in these animals.

Since Interferin contains iodine and other ingredients similar to those in Interruptin and Provocol, there would appear to be an equal danger in its use. The firm cites no bibliography in the Interferin folder.

ALCOHOL NEURITIS WITH BULBAR SYMPTOMS

To the Editor:—A man, aged 52, a Russian laborer in the coal mines, has painful erections as a result of fibrous infiltration of the corpora cavernosa (this symptom has no bearing on the neurologic condition). During the history and physical examination the following pertinent points were disclosed. The family history is irrelevant. The patient was quite a heavy drinker previous to 1931; since then he has been an abstainer. There is no history of venereal disease. There are continuous mild frontal headaches and tinnitus aurium; some shortness of breath; difficulty in swallowing and difficulty in talking for the past four years; inability to walk without supporting himself, for a similar period; he has lost 50 pounds (23 Kg.) during the past four years. The onset of the neurologic symptoms dates back to his first admission to the hospital in December 1930. At that time he complained of diarrhea and pain in the stomach, and pains in the soles of the feet and the calves of the legs. The condition lasted until the following March. He was able to walk at this time, although he noted some difficulty. A rather poor physical examination reported on the chart stated that all tendon reflexes were absent at this time. This is the only pertinent statement in the history. He was returned to the hospital one month later. This time he came in with second degree burns of his ankles. He stated that he felt the usual pain and paresthesia in his feet. He soaked his feet in warm water and felt that it was not warm enough, so he poured some scalding hot water over his legs and states that he did not feel the scald at all, and at this time he became paralyzed in both lower extremities and in his right arm. He was brought into the hospital in this condition. There was also complete loss of speech lasting for three months. There was no loss of consciousness. This paralysis remained from April of one year until October of the following year, when he was left with the condition as presently to be described. With the onset of this paralysis he also noted difficulty in speech and deglutition. The patient is fairly intelligent and talks as though his tongue were swollen. The cardiorespiratory, gastrointestinal and genito-urinary systems offer no symptoms bearing on the neurologic condition. Neurologic examination shows that the patient cannot walk unless he supports himself with his hands. There is some wasting of the musculature of the ankles and calves. The patient is able to rise on his toes and heels when supported. Ankle clonus is absent; the achilles reflex, as well as all the other deep tendon reflexes, is absent. The Babinski sign is negative. The cremasteric reflex is considerably suppressed. The abdominal reflex is present. He has good motor power in his hands. The stereognostic sense is normal. There is no evidence of facial palsy. The tongue protrudes in the midline. There is no tremor or atrophy. The pupils are regular, equal and of normal size; they react to light and in accommodation. There is no nystagmus. Ophthalmoscopic examination shows a blanching of the temporal halves of both disks. There is no relaxation of the sphincters. Laboratory examination has given a negative blood Wassermann reaction on two occasions. The spinal fluid Wassermann reaction is negative in all concentrations. Cell count, the colloidal gold test and the globulin are normal. Urinalyses and blood counts during all his admissions to the hospital have shown nothing significant. From the foregoing can you suggest a possible diagnosis or can you suggest any other study to help in arriving at the cause of this condition?

M.D., Pennsylvania.

ANSWER.—The wording of the question reads as if the neurologic complaints began before the patient abstained from alcoholic liquors. The condition described is apparently one of an alcoholic peripheral neuritis complicated by bulbar symptoms, which are probably due to lesions within the medullary nuclei. The recession of the peripheral nervous symptoms coincides with the usual course of alcoholic neuritis. The remnant of symptoms in the periphery and the disturbed functioning of the tongue suggests that some of the lesions have become permanent. Recent researches suggest that there is also a deficiency of vitamin B in the etiology of alcoholic neuritis and hence it is suggested that vitamin therapy be given.

FACIAL PALSY AFTER SKULL FRACTURE

To the Editor:—What, if anything, can be done to improve a peripheral facial palsy following a fractured skull? Please omit name.

M.D., New York.

ANSWER.—The treatment of a peripheral facial palsy following a fractured skull depends on several factors: the reaction of the involved facial muscles and nerves to the faradic and the galvanic current and the location and character of the lesion. A peripheral facial palsy in a fractured skull may be due to an injury of the facial nucleus in the pons or at any point in its path from the pons to the stylomastoid foramen. This lesion may be either edema, compression, hemorrhage or actual severance of the nerve. Fortunately, in from 70 to 75 per cent of the cases this type of paralysis is amenable to medical and electrical treatment because it is due to edema or hemorrhage in the nerve. If the muscles and nerve of the involved side react to the faradic and the galvanic current, one may say that the paralysis will disappear in about six weeks with electrotherapy; that is, galvanism to the face three times weekly. If they do not react to the faradic but react abruptly or slowly to the galvanic current, one may say that the paralysis should disappear in from six to eight months with galvanic treatment to the involved side. If, however, there is no reaction to either the faradic or the galvanic current, one may say that the facial nerve is anatomically interrupted and that electrotherapy is of no value. In these cases, various anastomosing operations have been done. One may either do (1) an anastomosis with the cut ends of the facial nerve, (2) anastomosis of the facial and hypoglossal nerves or (3) anastomosis of the facial and spinal accessory nerves. Since it takes from ten to fourteen days for a peripheral nerve to degenerate, electrical examinations must be done from ten to fourteen days after the injury to the facial nerve.

PUPILLARY CHANGES AFTER DENTAL NERVE BLOCKING

To the Editor:—It has recently been brought to my attention by two of our local dentists that they noticed certain pupillary phenomena following nerve blocking for extraction. One dentist has found an almost immediate dilatation of the pupil on the side of the injection when 1 cc. of 2 per cent procaine hydrochloride solution was injected into the mandibular branch of the fifth nerve. Another dentist informed me that he has found it to occur after injection into the palatine branch of the second division. My purpose in writing is to learn if possible the exact mechanism that takes place. It is known that through anastomosis the fifth nerve is involved in the sympathetic fibers to the iris controlling the dilator muscles, but I would expect procaine injection to have the opposite effect. Whatever interpretation you should put on this I should be very glad to have in view of the fact that I am going to discuss pupillary changes at a medical meeting. Please omit name.

M.D., Minnesota.

ANSWER.—The dilatation of the pupil on the side of injection of procaine hydrochloride into the second or third divisions of the fifth nerve may have one of the following explanations: Infiltration into the mandibular or maxillary branches of the fifth nerve extends along the sheaths into the gasserian ganglion, irritating the sympathetic fibers along the ophthalmic division of the fifth nerve and causing the pupil to dilate. Another explanation is that of Rochat, who obtained evidence of the existence of pupilloconstrictor fibers running in the fifth nerve of rabbits. Therefore, paralysis will cause dilatation. On the other hand, Magitot believes that vasodilator impulses known as antidromic are present in the fifth nerve. Stimulation causes constriction of the pupil as the result of engorgement of the capillaries in the iris, whereas paralysis would cause a vasoconstriction and dilatation of the pupil.

IMPEDANCE ANGLE TEST FOR THYROTOXICOSIS

To the Editor:—I would appreciate any information you might be able to give me regarding the impedance angle test for thyrotoxicosis. I have at hand the prize essay for 1934 won by M. A. B. Brazier, Ph.D., London, England. Have there been any articles published since then? I am particularly interested in regard to any new information relative to the apparatus used in taking the impedance angle test.

V. A. KILLORAN, M.D., Sandusky, Ohio.

ANSWER.—Articles on the impedance angle test for hyperthyroidism appeared in the *Lancet* in 1934 (Brazier, M. A. B.: *Lancet* **1**:125 [Jan. 20] 1934. Holiday, E. R., and Smith, F. E., ibid. **2**:139 [July 21] 1934). A paper by A. C. Van Ravenswaay, S. Herty and G. W. Thorn of Boston, "Clinical Evaluation of Impedance Angle," was given at the annual meeting of the Association for the Study of Internal Secretions, June 11, 1935. The American workers fail to corroborate the English observations. They found the value constant for an individual but, contradicting Brazier, they observed that it would remain fixed while the metabolic rate was falling in hyperthyroidism or rising in treated hypothyroidism. The final report of this work will doubtless appear presently in *Endocrinology*.

LEUKOPLAKIA OF PENIS

To the Editor:—A man, aged 41, has leukoplakia of the penis of seven years' duration. I would greatly appreciate your telling me what the latest treatment would be in such a case. Please omit name.

M.D., Michigan.

ANSWER.—Leukoplakia is not a disease entity; it is simply a condition of overgrowth of the superficial layers of the mucous membranes, a manifestation of chronic inflammation most often the result of repeated irritation. Some cases are analogous to the senile keratoses of the skin.

Leukoplakia, whatever its location, is potentially dangerous, for the patches, especially of the latter type, are prone to undergo carcinomatous degeneration. Actually, however, only a small percentage of the lesions do become malignant if they are carefully protected against repeated irritation. In cases in which there is activity, it is necessary that the lesion be thoroughly destroyed. This is best done by light thermocautery. Unfortunately treatment is not always successful, for the lesions often recur.

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In the case cited it would probably be best to take a conservative course. The patient has had the lesion for seven years and the probabilities are that he will have it for many years more without trouble. If there is irritation from phimosis or from any other source, that should be corrected. The patient should be examined from time to time, and later, should there be any evidence of degeneration, the lesion can be destroyed.

DETERIORATION OF MATERIAL FOR SCHICK TEST AND DIPHTHERIA IMMUNIZATION

To the Editor:—I will appreciate it if you will supply me with some information, which I feel that it is important to have. Recently a detail man told me that oxygen destroys the efficacy of alum precipitated toxoid. Many physicians have been using the 10 cc. vials and unnecessarily injecting air into the vial. If this statement is true, many are giving their patients and themselves a sense of false security so far as protection against diphtheria is concerned. I should also like to know whether or not the same is true of Schick test material. We have had the experience in our county recently of three or four individuals contracting diphtheria shortly after they had a negative Schick test. I do not think this was the fault of the technic. If we are destroying the efficacy of the toxoid and the Schick test serum in this manner, I think that we should know it so that we may better protect our patients by using individual packages for each patient. I will appreciate your setting me right in this matter.

ORVILLE BARBOUR, M.D., Peoria, Ill.

ANSWER.—Material for the Schick test should be used the same day it is prepared. After dilution the toxin deteriorates rapidly, and results obtained with it become unreliable. It is likely that the negative Schick tests in persons who shortly afterward contracted diphtheria may be explained in this way. The undiluted toxin is much more stable and can be kept for some time in the refrigerator. There is doubtless a gradual deterioration of the alum precipitated toxoid, but it takes place so slowly that the solution retains its immunizing properties for some time if kept in the refrigerator. The entrance of air is probably not a determining factor in the deterioration.

CASTOR OIL AND SANTONIN

To the Editor:—In Queries and Minor Notes in THE JOURNAL, May 25, page 1931, the following answer appears: "Castor oil does not increase the absorption of santonin. The castor oil may be given immediately after the santonin or even combined with it." While I do not presume to offer suggestions regarding the use of santonin in children, abundant experience in the use of santonin in the treatment of young dogs has clinically demonstrated the fact that castor oil or purgatives should not be given immediately following the administration of santonin, if one expects ascaricidal effects from santonin. In the canine subject, santonin is best given late in the evening four or five hours after a light meal, and mildly purgative agents should not be given until eight hours has elapsed. Incidentally, is santonin actually harmful to the human patient if given in larger doses than are commonly employed? Two grains (0.13 Gm.) is consistently harmless in young puppies weighing as little as 5 pounds (2.3 Kg.).

J. V. LACROIX, D.V.S., Evansville, Ill.

ANSWER.—In children, 0.06 Gm. has produced serious poisoning and two such doses have been fatal. It has been estimated that human infants are 100 times as sensitive as adults, and they are probably a great deal more sensitive than that in comparison with puppies.

NO MORTALITY REPORTED AFTER SCARLET FEVER IMMUNIZATION

To the Editor:—Are there any authentic cases of death following injections of scarlet fever streptococcus toxin for prophylactic immunization to scarlet fever? I have done quite a number without serious results, but recently I have been immunizing a child to scarlet fever and had given her four injections, with a slight reaction following the third. Between the fourth and fifth injections her father had been visiting some friends who had brought their child to a doctor for scarlet fever immunization and he refused to do it because he said that he knew of three deaths in that city following injections of scarlet fever toxin for immunization. Of course, the father is reluctant about having his child take the fifth dose. Is there any danger of allowing more than seven days to elapse between injections? It is two weeks since this child has had her fourth injection. Would you advise giving her the fifth injection or would you advise giving her the Dick test and eliminating the fifth injection if she is negative? Kindly omit name and address.

M.D., Minnesota.

ANSWER.—There are no authentic cases of death due to injection of scarlet fever streptococcus toxin for prophylactic immunization against scarlet fever. The doctor who claimed that he knew of such deaths should be willing to furnish the names of the patients and their attending physicians so that the matter can be investigated. There is no danger in allowing more than seven days to elapse between injections. If a month has elapsed it is best to repeat the last dose before proceeding. It is advisable to give the fifth injection.

TRISMUS

To the Editor:—A woman, aged 25, in good health, had an impacted right lower molar extracted four months ago. The procedure was rather long and tedious. Mastication was almost impossible for two weeks, after which time the patient had difficulty in opening the mouth. The dentist would forcibly open it about once a week. This condition has since improved but she is now unable to taste or feel small objects on the right posterior part of the tongue. She is able to move it in all directions but with apparent effort. She also complains of peculiar sensations, as if some one were pulling or twisting her tongue. What could have been the probable cause, and what, if anything, should be done to improve the condition? What is the probable duration of the disability?

E. L. ST. GERMAIN, M.D., Breaux Bridge, La.

ANSWER.—The trismus may have been brought about by the injection of the anesthetic into the pterygoid muscle but was probably brought about by the trauma and subsequent edema of all the muscles of mastication. Forcing open the jaws and exercising them will always remedy this condition.

The lack of sensation in the posterior part of the tongue is due to injury of the lingual nerve, which frequently passes close to the third molar region.

The peculiar sensations involved are signs of regeneration.

Time, and time alone, will take care of the condition, which usually lasts from six weeks to nine months, depending on the extent of the injury to the lingual nerve.

OBSTRUCTION TO URINARY FLOW

To the Editor:—A white man, aged 70, had a suprapubic prostatectomy sixteen months ago. Following this a fistula into the bladder developed through the suprapubic wound. Four months later this was opened and an attempt was made to close it, but with no success. Until the present day, leakage has continued through this fistula. The urine is loaded with pus cells. The blood pressure is 180 systolic, 100 diastolic. The output of urine in twenty-four hours is over 2 liters. Difficulty is encountered in passing even a 14 French sound, but a soft rubber catheter of the same caliber can be inserted. The bladder seems to be of small capacity, holding only about 150 cc. (introduced through the cathether), when it causes a feeling of distention and pain. There is, of course, no force to the stream. The patient refuses further hospitalization for further study or treatment and must be treated at home or in the office. He is able to be up and about but suffers from frequency of urination. He still has some control. Please omit name and town.

M.D., Pennsylvania.

ANSWER.—The patient evidently has an obstruction to the outflow of urine in the bladder neck. This may be due to incomplete removal of the prostate gland or fibrosis of the neck of the bladder. If the former, nothing short of removal of the obstruction would be likely to be of help. If the latter, the condition might be benefited by gradual dilation.

EPIDEMIC ENCEPHALITIS

To the Editor:—A man, aged 27, consulted me on May 25, 1935, for the following: Since 1918, when he had influenza, he has had transitory attacks of amnesia lasting for four or five seconds, at which time his eyes roll up. No dizziness, headache or any aura accompanies the attack. He can recall the attack but cannot tell what has happened during it. The attacks come three or four times during the day. Physical, laboratory and neurologic examinations are negative. Phenobarbital makes his condition worse. His occupation is road scraping. Kindly suggest a mode of approach in arriving at a diagnosis and treatment.

M.D., Ohio.

ANSWER.—From the history of this patient and the subsequent course of the disease, it is obvious that the attack of influenza in 1918 was an acute epidemic encephalitis. The momentary attacks of upward rolling of the eyeballs are termed the oculogyric crises of encephalitis. These occur at rather frequent intervals and are usually associated with fatigue. Frequently there is an amnesia during the attacks. The treatment consists in the use of scopolamine hydrobromide in 0.6 mg. (1/100 grain) doses several times a day. Sometimes ephedrine does good in these cases. The attacks often spontaneously cease but there is no specific therapy for them.

VITAMIN C IN MILK

To the Editor:—If a breast fed baby refuses all sources of vitamin C, will a sufficient amount of the vitamin be transmitted in the mother's milk, granted that she take a large amount of orange juice or tomato juice?

FREDERICK B. DEVITT, M.D., Oneonta, N. Y.

ANSWER.—Extensive investigations have been conducted on the variation of vitamin C content of cow's milk with the diet of the animal. It has been noted that at the end of the winter period, when the cows are being fed on concentrates and hay, the vitamin C content of their milk is at a minimum. However, in the summer, when the animals are in open pasture and plenty of fresh vegetable food is available, the vitamin C content of the milk is materially enhanced. In periods of drought, where

suitable pastures are not available, there is a fall in the amount of vitamin C in the milk. There are few accurate studies on the relation of the diet of the mother to vitamin C in breast milk. It has been said that scurvy is comparatively rare in breast fed infants, and it is known that breast milk contains higher quantities of vitamin C than fresh cow's milk. Until further investigation has conclusively shown the influence of vitamin C containing foods in the mother's dietary on the amount of vitamin C in breast milk, it would seem unwise to rely on the breast milk as the sole supply of this vitamin for the nursing infant.

UNDULANT FEVER

To the Editor:—I have a patient suffering from undulant (Malta) fever. He has had this disease about two months. I recently gave him six injections of undulant fever vaccine containing 1,000 million Brucella abortus and 1,000 million Brucella melitensis organisms per cubic centimeter. I started with 0.3 cc. and ended with 1.2 cc. per injection. He has no more fever but complains of frequent attacks of generalized severe aching. I should like to know whether additional vaccine injections would be advisable. Can the dosage be increased? He weighs about 190 pounds (86 Kg.).

A. C. SCOTT, M.D., Evansville, Ill.

ANSWER.—Those who have had the widest experience with the use of Brucella melitensis (abortus) vaccine therapy for undulant fever (brucellosis) suggest that the minimum course should consist of the injection of 10 cc. of the vaccine in divided doses, beginning with injections of 0.25 cc. and gradually increasing the dosage, at three day intervals, to 1 cc. In cases of chronic brucellosis, doses larger than 1 cc. may be required.

DISINFECTION AGAINST SCABIES

To the Editor:—Will you please give me the easiest way of disinfecting leather suitcases used by a traveling salesman with scabies. The patient has had it two months before knowing it, and all articles such as papers, brushes and matches are infected. Would these parasites die in a period of three months if suitcases were not used and render them sterile? Could you suggest a fairly easy and safe way to disinfect them or would it be necessary to discard them? Any information you can give me on this subject will be appreciated. (Important papers hard to sterilize.)

S. MOYER KALEN, M.D., East Pittsburgh, Pa.

ANSWER.—The acarus of scabies dies within a few days after its removal from the skin, and immersed in liquids, such as water and oil, which deprive it of air. It is unlikely that the parasites would survive for a period of three months in suitcases that were not used. To safeguard further against the presence of live acari, the suitcases could be given a coating with an oil leather dressing for a few days, thus excluding air.

DOSAGE OF VIOSTEROL IN OIL

To the Editor:—For the past two years I have been giving a woman, aged 49, viosterol in oil for calcium deficiency. At first, small doses were accompanied by good results. Lately she had not been taking any medication and again got weak and could not do her work. When she returned to me I gave her calcium in the form of calcium gluconate wafers and viosterol in oil. I told her to increase the latter until she felt better. Today she came in with the information that she felt much better but that she has to take 50 drops three times a day. Is there any danger in so large a dosage of viosterol?

M.D., Michigan.

ANSWER.—There is practically no danger. Children have been given, apparently without harm, as much as 200 drops of viosterol in oil daily.

ALCOHOLIC LIQUORS AND BASAL METABOLISM

To the Editor:—Will the ingestion of several ounces of spirituous liquor on the night preceding the morning of a basal metabolic rate determination affect the result of this test?

J. PHILLIPS EDMUNDSON, M.D., Kansas City, Mo.

ANSWER.—If the individual is a habitual user of alcohol, the ingestion of several ounces of spirituous liquor twelve hours before having a basal metabolic rate determination would probably not affect the test. Otherwise, spirituous liquor should be interdicted at least twelve hours before having a test made.

URETHRAL CYST

To the Editor:—Where can I obtain detailed methods of treatment, both medical and surgical, for a cyst located just below the urethral orifice in a young married woman? Kindly omit name.

M.D., New York.

ANSWER.—A cyst located just below the urethral orifice may be treated in one of two ways. The cyst may be excised under local anesthesia or it may be destroyed with the high frequency spark.

Medical Examinations and Licensure

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Kansas City, Mo., May. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, Dec. 7. *Applications must be filed not later than Nov. 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Nov. 18. Application and case reports must be filed before Oct. 15. Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: St. Louis, Jan. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: St. Louis, Nov. 20. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 30. Sec., Dr. Walter Freeman, 1726 Eye St., N. W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Detroit, Dec. 1-2. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

ARKANSAS: *Basic Science.* Little Rock, Nov. 4. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Nov. 12. Sec., State Medical Board of the Arkansas Medical Society, Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, Nov. 12. Sec., Dr. Clarence H. Young, 207½ Main Street, Little Rock.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Medical (Regular).* Hartford, Nov. 12-13. *Endorsement.* Hartford, Nov. 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, Nov. 12. Sec., Dr. Joseph H. Evans, 1488 Chapel Street, New Haven.

FLORIDA: Tampa, Nov. 11-12. Sec., Dr. William M. Rowlett, Box 786, Tampa.

ILLINOIS: Chicago, Oct. 22-24. Act. Supt. of Regis., Dept. of Regis. and Edu., Mr. Clinton P. Bliss, Springfield.

MAINE: Portland, Nov. 12-13. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413 State House, Boston.

MINNESOTA: Minneapolis, Oct. 15-17. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSOURI: Kansas City, Oct. 24-26. State Health Commissioner, Dr. E. T. McGaugh, Capitol Building, Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III, Baltimore, Oct. 22-24, and Boston, Nov. 5-7. Exec. Sec., Mr. Edward S. Elwood, 225 So. 15th St., Philadelphia.

NEBRASKA: Lincoln, Nov. 19-20. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 4. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 15-16. Sec., Dr. Arthur W. Belting, 28 W. State St., Trenton.

OREGON: *Basic Science.* Portland, Nov. 16. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

SOUTH CAROLINA: Columbia, Nov. 12. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Houston, Nov. 18-20. Sec., Dr. T. J. Crowe, 918 Mercantile Building, Dallas.

WEST VIRGINIA: Huntington, Oct. 28. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

National Board of Medical Examiners

The National Board of Medical Examiners reports that its certificate was awarded to 421 candidates who passed the final examination held during June and July 1935. The following schools were represented:

School	PASSED Year Grad.	Number Passed
College of Medical Evangelists	(1925), (1930), (1931), (1932, 2), (1933, 3), (1934),* (1934, 10), (1935, 42)	61
Stanford University School of Medicine	(1935, 3)	3
University of California Medical School	(1934)	1
University of Southern California School of Medicine	(1935, 2)	2
University of Colorado School of Medicine	(1920), (1932), (1933), (1934, 6)	9
Yale Univ. School of Medicine	(1932, 2), (1933, 10), (1934, 11)	23
Georgetown University School of Medicine	(1933)	1
Georgetown University School of Medicine	(1933), (1934, 2)	3
Howard University College of Medicine	(1934, 3)	3
Emory University School of Medicine	(1930), (1933)	2
Loyola University School of Medicine	(1935, 6)	6
Northwestern Univ. Medical School	(1933), (1934, 2), (1935, 4)	7
Rush Medical College	(1930), (1933), (1934, 5), (1935, 10)	17
School of Medicine of the Division of the Biological Sciences	(1934), (1935, 3)	4
University of Illinois College of Medicine	(1933)	1
State University of Iowa College of Medicine	(1933)	1
University of Louisville School of Medicine	(1933), (1934)	2
Tulane University of Louisiana School of Medicine	(1931), (1933, 7), (1934, 4)	12
Johns Hopkins University School of Medicine	(1930), (1933, 5), (1934, 2)	8
Boston University School of Medicine	(1933, 2), (1934, 10)	12
Harvard University Medical School	(1919), (1929, 4), (1931, 2), (1932, 8), (1933, 20), (1934, 9)	44
Tufts College Medical School	(1932), (1933, 9), (1934, 8)	18
Univ. of Michigan Medical School	(1932), (1933, 2), (1934, 3)	6
University of Minnesota Medical School	(1933, 2),* (1933), (1934, 7), (1935, 11)	21
St. Louis University School of Medicine	(1933, 3), (1934, 2)	5
Washington Univ. School of Medicine	(1933, 2), (1934, 2)	4

Creighton University School of Medicine.....(1934)	1
University of Nebraska College of Medicine..(1933), (1934)	2
Albany Medical College .....(1933)	1
Columbia University College of Physicians and Surgeons (1930), (1931), (1932, 2), (1933, 11), (1934, 5).....	20
Cornell Univ. Medical College....(1932), (1933, 8), (1934, 5)	14
Long Island College of Medicine.....(1934)	1
New York Homeopathic Medical College and Flower Hospital .....(1934, 2)	2
New York University, University and Bellevue Hospital Medical College .....(1933)	1
Syracuse University College of Medicine.....(1934)	1
University of Buffalo School of Medicine..(1933), (1934, 8)	9
University of Rochester School of Medicine..(1933), (1934, 5)	6
Duke Univ. School of Medicine (1932, 3), (1933, 7), (1934, 3)	13
University of Oklahoma School of Medicine..(1932), (1934)	2
University of Oregon Medical School (1929), (1931), (1933, 2), (1934, 3)	7
Hahnemann Med. College and Hospital of Philadelphia (1934)	1
Jefferson Medical College of Philadelphia..(1931), (1933), (1934, 3)	5
Temple University School of Medicine.....(1933), (1934)	2
Unversity of Pennsylvania School of Medicine (1929), (1932, 2), (1933, 6), (1934, 11).....	20
Woman's Medical College of Pennsylvania (1933, 3), (1934, 3)	6
Meharry Medical College.....(1927), (1934)	2
Vanderbilt University School of Medicine.....(1934)	1
University of Texas School of Medicine.....(1924)	1
Univ. of Vermont College of Medicine (1933, 6), (1934, 2)	8
Medical College of Virginia.....(1933)	1
Marquette Univ. School of Medicine (1933, 2), (1934), (1935)	4
University of Wisconsin Medical School.....(1933)	1
Dalhousie University Faculty of Medicine.....(1933)	1
University of Toronto Faculty of Medicine..(1928), (1934, 2)	3
University of Western Ontario Medical School.....(1934)	1
McGill Univ. Faculty of Medicine..(1932), (1933), (1934, 3)	5
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow.....(1928)	1
American Univ. of Beirut School of Medicine (1933),† (1934)†	2

* M.D. degree has not been issued.
† Verification of graduation in process.

Book Notices

Industrial Medicine. By W. Irving Clark, A.B., M.D., Assistant Professor of the Practice of Industrial Medicine, Harvard School of Public Health, Boston, and Philip Drinker, S.B., Ch.E., Associate Professor of Industrial Hygiene, Harvard School of Public Health. National Medical Monographs. Edited by Morris Fishbein, M.D. Cloth. Price, $4. Pp. 262, with 32 illustrations. New York: National Medical Book Company, Inc.: Doubleday, Doran & Co., Inc., 1935.

The happy teaming of an industrial physician and surgeon and a research engineer versed in applied physiology, both well known, has led to the production of this volume, which is intended as a "vade mecum" for the general practitioner as well as for the industrial physician and engineer. The aim has been to clarify what is meant by industrial medicine and the nature of the principle health hazards to which workers may be exposed, with a chapter on the industrial surgical program. The problems divide themselves into two groups: maintenance of health, and diagnosis and treatment of minor sickness and of injuries. Prevention is largely an engineering problem (it might have been better to say chemical engineering) but is perfected only by a close cooperation of the medical department. In no other field is there such a close relation between these two professions (an exception might be found in public health). "Either profession alone is unable to find the answer." Essentially, the subject is a branch of preventive medicine and public health.

Twelve chapters with a comprehensive bibliography, index and index of authors cover the items of organization, surgical and medical services, industrial diseases, dusts, pneumoconiosis (three chapters), lead and metal fume fever, dermatoses, gases, benzene, asphyxia and artificial respiration, and the prevention of industrial diseases. The forms, charts and reproductions of photographs are well selected.

In particular the standards of procedure, the reference of cases to family physicians, with cooperation in diagnostic work, an invitation to physicians to visit plants where their patients work, and the duty of industry to assist in rehabilitation, in which no little part is the restoration of mental confidence, all contribute to the solution. In regard to industrial accidents, the full responsibility for treatment lies with the plant physician. Here the standards of the American College of Surgeons for Medical Service in Industry are the guide. After all, the most severe health hazards usually occur in small plants.

Metabolism in working environment and the adaptability of man is keenly sensed. "The familiar 30 cu. ft. [of fresh air] per person, so widely used in various state laws, should be changed and conditions judged on the basis of results obtained." Modern air conditioning, with cooling in warm weather, necessitates limited air change, the basis being essentially that of odor comfort. The dust question climaxes the discussion and is a broadly conceived, commensurate summary of facts and theories, although the positive relation between silicosis and tuberculosis, in the absence of necropsies, is probably overstated in view of recent reports from many sources. Also the failure to recognize the importance of anaerobic infection is to be noted. Something of a vernacular tinge occurs in the fact that several pages are devoted to anthrax, which is of limited occurrence even in coastal cities. Again, the space given to industrial arsenic poisoning (now almost a curiosity) might have gone to acid vapors, mercury, sulphur compounds or the newer toxic solvents. The practical problems of organized labor relations, the allocation of costs of service, and methods of education are not touched on. There are a goodly number of instances of crediting discoveries or significant summaries to "moderns" when older works and workers were the real contributors. The little volume is indispensable to the physician in contact with industrial work. It is a valuable companion volume to half a dozen others that have recently appeared in a field of sorely neglected economics, which is a wayward child of medicine and society at the present time.

The Maternity and Child Welfare Movement. By G. F. McCleary, M.D., D.P.H., Principal Medical Officer, National Health Insurance Commission (England). Cloth. Price, 7s. 6d. Pp. 227. London: P. S. King & Son, Ltd., 1935.

To his recent volume "The Early History of the Infant Welfare Movement" the author adds this book, which brings down to date his historical consideration of the development of child welfare. The title of this book is significant in that it includes the question of maternal health, which logically and actually is inseparable from child health. His primary interest is in the child welfare movement in England, and he pays even less attention to American developments in this book than he did in the earlier volume, in which there was a chapter on developments in America. Since, however, the English movement is his topic, this is not unfavorable criticism. He devotes chapters to the origin of the maternity and child welfare movement, its progress during the World War, the growth of "health visiting," which we call public health nursing, the maternity and child welfare center, antepartum care, the unmarried mother and her child, the unwanted baby, the preschool child, state recognition of midwives, maternal mortality and morbidity, the new attack on infant mortality, and the administration of maternal and child welfare service in the British Isles. Of particular interest are the chapters on maternal mortality and morbidity and those relating to midwives. He sets forth the advantages and disadvantages of the various legislative acts and appraises the progress of the movement with what seems to be an eminent sense of fairness. He appears to be a proponent of greater participation in welfare service by governmental agencies. Of particular interest to American readers will be his enumeration of the failures of health insurance to go as far in providing for maternal welfare as the author thinks should have been done.

Gynecological and Obstetrical Tuberculosis. By Edwin M. Jameson, B.S., M.D., Attending Surgeon, Saranac Lake General Hospital and Reception Hospital, Saranac Lake, N. Y. Cloth. Price, $3.50. Pp. 256, with 31 illustrations. Philadelphia: Lea & Febiger, 1935.

Here is a book which every obstetrician, gynecologist, phthisiologist and internist should have in his library not only to be read through and through but as a book of reference. The author is to be highly commended not only for the excellence of the book but also for calling attention to a subject which unfortunately has not received the attention it should. The average physician, and even the average gynecologist, considers tuberculosis of the female genitalia a rare complication, though this is far from the truth. If all fallopian tubes were examined microscopically as a routine, physicians would quickly learn that tuberculous salpingitis is not uncommon. The author's purpose in writing the book was to present a critical study of (1) the alterations in the pathologic physiology of the female genital apparatus brought about by pulmonary tuberculosis, (2) the various forms of female genital tuberculosis and (3) a survey of the problem of pregnancy in the tuberculous woman. The book is therefore divided into three parts. The author has thoroughly reviewed the literature of the world down to date

and he critically evaluates the data and opinions of numerous authorities. The suggestions concerning therapy are excellent and are based on the author's extensive personal experience with tuberculous women at Saranac Lake. At the end of the book is a complete and highly valuable bibliography dealing with every phase of tuberculosis in the female. This book will long remain a classic on the subject of gynecologic and obstetric tuberculosis.

Hugh Owen Thomas: His Principles and Practice. By D. McCrae Aitken, M.A., M.B., Ch.B., Director of Surgery, Robert Jones and Agnes Hunt Orthopaedic Hospital, London. Cloth. Price, $4.25. Pp. 96, with 8 illustrations. New York & London: Oxford University Press, 1935.

This is a supplementary volume to the delightful "The Personal Study," by Watson, which was reviewed recently in this column. The author, who was closely associated with Sir Robert Jones, a nephew of Hugh Owen Thomas, has written an authoritative, instructive and inspiring little book. It is intended to be a study of how Thomas came to formulate his special methods of treatment and to trace his influence on the practice of the present day. Thomas is remembered for his systematic treatment of joint injuries and diseases and for the splints he devised to give effect to his system of treatment. Hugh Owen Thomas was the son of a well known "bonesetter" established in practice for twenty-five years, which had a definite influence on the cool reception given to Thomas by the medical profession of Liverpool. Fate and the condition of his birth and environment plunged him into general practice in the slums of Liverpool. Sir Arthur Keith, in "Menders of the Maimed," wrote: "It is true that Thomas never did study those conditions in the postmortem room, dissecting room or experimental laboratory, but there never was a man who studied more persistently and observed more closely the manifestations of disease and injury as seen in the living state. It was Hugh Owen Thomas's great merit to have proved that a busy general practitioner can, by purely clinical methods, win for himself a permanent place among the benefactors of medicine." His passion for accurate knowledge and his recognition of physiologic principles of tissue life and repair made him seek fundamental rules of treatment. His appreciation of the value of physiologic rest drove his logical mind to reduce the management of disease to a definite system and to design splints to achieve his purpose with efficiency. The rule laid down by W. J. Little in 1839 that the splint must be adjustable by the surgeon has always held good; if the surgeon does not know how to adjust his splint he ought not to do orthopedic surgery. The bounds of Owen Thomas's practice were the shores of the seven seas, though inland, in his own country, he was not so well known. An effort has been made to show that Thomas was no mere mechanical inventor of splints, as some still think, but a practitioner of wide experience who brought to his work keen clinical acumen and a profound respect for physiologic laws. This little book is an interesting companion volume to its predecessor.

Christine Murrell, M.D.: Her Life and Her Work. By Christopher St. John. Preface by Lady Barrett, C.H., C.B.E., M.D. Cloth. Price, 5/-. Pp. 133, with one illustration. London: Williams & Norgate, Ltd., 1935.

This is a worthy monument to a woman worthy of a monument. Christine Murrell followed closely after the generation of British medical women who pioneered to gain admittance to medical schools and the right to practice medicine. So quickly were their positions consolidated that Dr. Murrell was able to achieve the highest politicomedical position, membership on the Medical Council of Great Britain. Although an ardent suffragette and keenly, often actively, interested in every phase of the woman's movement, Dr. Murrell considered herself "a representative of the whole (medical) profession, and not of medical women only." In preparing this most readable account of Dr. Murrell's public and private life, Christopher St. John has consulted her colleagues, friends and employees. Through the eyes of many witnesses one sees forming the picture of a busy and successful general practitioner who was especially interested in the neurologic approach to her patients' problems and who yet found time for a vast range of other interests and activities.

Synopsis of Genito-Urinary Diseases. By Austin I. Dodson, M.D., F.A.C.S., Professor of Genito-Urinary Surgery, Medical College of Virginia. Fabrikold. Price, $3. Pp. 275, with 111 illustrations. St. Louis: C. V. Mosby Company, 1934.

This small volume is a satisfactory attempt to produce a synopsis of genito-urinary diseases for the student. The author has stressed the importance of etiology, symptomatology and diagnosis. The facts are well ordered and inclusive. The illustrations for the most part are excellent but occasionally fail to depict, especially to the student, the condition seen by cystoscopy. Naturally there are omissions in a book of this small size; but the only two striking ones noticed are the failure to discuss the importance of the parathyroid in relation to urinary calculus and the failure to mention the quantitative hormone determination in the urine in its relation to tumors of the testes. The statement on page 143 that brilliant cures of chronic arthritis have followed excision of infected seminal vesicles may not be accepted as the experience of most urologists but of course cannot be categorically denied. For the most part this book encompasses in a small space a wealth of informative material and should be highly valuable not only to the student but to the general practitioner as well.

Unsere Nahrungs- und Genussmittel: Ihre Zusammensetzung, ihre Verfälschung und die lebensmittelrechtlichen Bestimmungen. Von Dr. med. Ewald Gerfeldt, Regierungs- und Medizinalrat in Allenstein. Paper. Price, 4 marks. Pp. 118. Leipzig: Georg Thieme, 1935.

The introduction briefly portrays the historical development of German food laws. The main section of the book, on "Food Hygiene and Food Legislation," discusses such topics as the diet as a whole, illnesses and deaths due to contaminated food; fundamental food legislation and ordinances, including laws governing commerce in foods and commercial articles, the labeling of foods, articles containing lead and zinc, the sale and storage of petroleum, and the industry in general; and the surveillance maintained over commerce in foods and commercial articles. Separate chapters are devoted to the sanitary examination, composition, adulteration and legal status of the main classes of foods, such as meat, fish and eggs, milk, butter and cheese, fats, grains, legumes and potatoes, sugar products, vegetables, mushrooms and fruits, ice for food preservation, coffee, tea, chocolate, spices, vinegar, salt and tobacco, alcoholic beverages, and mineral water and lemonade. References to the sections of the various laws and ordinances affecting the respective foods and the specific requirements are given. In brief, the book is a syllabus on German food legislation and food control.

The Anatomy of the Rhesus Monkey (Macaca mulatta). By T. H. Bast and others. Edited by Carl G. Hartman, Department of Embryology, Carnegie Institution of Washington, and William L. Straus Jr., Department of Anatomy, Johns Hopkins University, Baltimore. Cloth. Price, $6. Pp. 383, with 128 illustrations. Baltimore: Williams & Wilkins Company, 1933.

This volume, a pioneering handbook on the anatomy of the Rhesus monkey, is divided into eighteen chapters and written by a total of nineteen contributors. In addition, there is a short appendix on the housing and care of this type of monkey written by the senior author, who has incorporated in it not only his own experiences in these respects but also those of Dr. George E. Corner. The book was compiled partly for research workers who intend to use this species of monkey as a laboratory animal, partly for students of comparative anatomy. Excellent as it is for the groups for which it was intended, most physicians would find it a dud on their book shelves.

Laboratory Experiments in Physiology. By W. D. Zoethout, Ph.D., Professor of Physiology in the Chicago College of Dental Surgery (Loyola University). Second edition. Cloth. Price, $2.25. Pp. 256, with 95 illustrations. St. Louis: C. V. Mosby Company, 1934.

Six years has elapsed since the appearance of the first edition of this laboratory guide in experimental physiology and biochemistry. The section on physiologic chemistry was added by request. The preface contains no inkling of the type of student for whom this manual was written, but the nature of both the text and the experiments would indicate that it was prepared for use in colleges and dental schools. The author has introduced numerous "whys" and "why nots" in each experiment which ought to be helpful to both student and teacher. Most of the illustrations are reproduced from other sources.

Medicolegal

Alcoholism: "Intoxication" Defined. — The plaintiff, a guest and passenger in an automobile driven by one of the defendants, was injured in a collision. She sued the driver of the automobile and the husband of the driver, alleging that her injuries were caused by the driver's intoxication. From a judgment in favor of the plaintiff, the defendants appealed to the district court of appeal, third district, California.

Definitions of "intoxication" laid down by the courts of Iowa and Mississippi were quoted by the court from 33 California Jurisprudence, page 479, note 32:

> "There are degrees of intoxication varying all the way from slight stimulation to complete coma. It is only at some point along the line between the two extremes that the loss of control of the mental faculties occurs. (*State* v. *Yates*, 132 Iowa 475, 109 N. W. 1005). In order for a person to be intoxicated, it is not necessary for him to be so much under the influence of intoxicating liquor as to be mentally and physically incapable of taking care of himself." (*Yazzo, etc., R. Company* v. *Davidson*, 106 Miss. 108, 63 So. 340.)

In Arkansas, "intoxication" has been defined as follows:

> "A man may be said to be drunk whenever he is under the influence of intoxicating liquors to the extent that they affect his acts or conduct, so that persons coming in contact with him could readily see and know that the intoxicating liquors were affecting him in that respect." *St. Louis, etc., Ry. Co.* v. *Waters*, 105 Ark. 619, 152 S. W. 137.

In Texas, a person was held to be intoxicated where a sufficient quantity of intoxicating liquor had been taken into the stomach to deprive him of normal control. *Lockhart* v. *State*, 108 Texas Cr. R. 597, 1 S. W. (2d) 894. In Minnesota, the court, in discussing the term "under the influence of intoxicating liquor," said:

> "When a person is so affected by intoxicating liquor as not to possess that clearness of intellect and control of himself that he otherwise would have, he is under the influence of intoxicating liquor." *State* v. *Graham*, 176 Minn. 164, 222 N. W. 909.

If the faculties of a person driving a car, said the court of appeal, are so far affected that he cannot appreciate the hazard involved in the manner in which he is driving his automobile or the imminent dangers arising from cutting in and out, fast driving and quick stopping, on a street where the traffic is heavy and school children are passing to and fro, the conclusion is justified that such a person is so far under the influence of intoxicating liquor as to have reached an unlawful degree of intoxication within the meaning of the California vehicle act. While the driver in the present instance denied intoxication and offered evidence to support her contention, the issue was a question of fact for the trial court to determine and the court of appeal was bound by the finding of that court, even though two physicians and a police officer testified that in their opinions the defendant driver was not intoxicated. The judgment of the trial court in favor of the plaintiff was affirmed. —*Tracy v. Brecht et al. (Cal.), 39 P. (2d) 498.*

Health Insurance: "Confined Within Doors" and "Total Loss of Time" Construed.—The defendant insurance company promised to pay certain benefits if Wade suffered disability resulting from disease "which confines the insured continuously within doors and requires regular visits therein by legally qualified physician; provided said disease necessitates total loss of time." Wade developed appendicitis and his appendix was removed. During the following year he underwent three major operations and was regularly attended by a physician. He remained either in his home or in a hospital, except on a few occasions when he was outdoors. Wade sued the insurance company, claiming that he had suffered a confining illness within the meaning of the policy, for a period of one year. From a judgment in his favor, the insurer appealed to the Supreme Court of Appeals of West Virginia.

The insurer contended that Wade suffered a confining illness for a period much shorter than he claimed. It relied on evidence showing that sometimes Wade walked to his physician's office, a distance of 100 yards, for treatment; that on a few occasions he walked to his place of business, although he took no active part in the conduct of the business, and that occasionally, on the advice of his physician, he took short walks, not for amusement or for profit but to aid physical recovery. The Supreme Court of Appeals, however, was of the opinion that during the twelve month period for which he claimed indemnity Wade was totally disabled and by necessity suffered total loss of time, within the meaning of his policy. Total disability, said the court, within the meaning of an insurance policy, does not mean absolute helplessness. An insured may recover indemnity "where, because of injury or illness, he has become unable to do substantially all the material acts necessary to the conduct or prosecution of his business or occupation in substantially his usual and customary manner." *Hayes v. Prudential Insurance Co.* (W. Va.), 171 S. E. 824.

Furthermore, said the court, a policy provision requiring continuous confinement within doors must be reasonably construed and applied. Where an insured person has become totally disabled and has been confined in the house substantially all the time, and regularly attended by a physician, but has gone out occasionally under medical advice and in furtherance of his efforts to regain his health, the courts generally hold that the house-confinement clause of the policy has been sufficiently complied with and the insured should be indemnified thereunder. To hold that the insured plaintiff forfeited his right to full indemnification because he did not literally remain within the four walls of his house would be to exalt the letter and submerge the spirit of the contract. The phraseology employed to denominate confining and nonconfining illness was not intended to prescribe or limit the conduct of the insured but to describe the condition, extent and degree of illness. Necessary confinement within doors because of illness does not mean an absolute and indubitable constraint, but a practical and intelligent "staying in," the nature of the illness considered. Consequently, said the court, the infrequent departures of the plaintiff from within doors were not such as to imply any lessening of the gravity of his illness. His illness is of the first degree of seriousness and so remains notwithstanding that a few times he sought the benefit of a little sunshine and mild exercise.

Accordingly, the Supreme Court of Appeals affirmed the judgment of the trial court in favor of the plaintiff, Wade.— *Wade v. Mutual Ben. Health & Accident Ass'n. (W. Va.), 177 S. E. 611.*

Charitable Hospitals: Basis for Exemption from Liability for Negligence of Nurse.—The plaintiff, a minor, by her guardian ad litem, instituted an action for damages against the defendant, a charitable hospital, for injuries alleged to have been suffered on the day of her birth at the hospital, through the negligence of a nurse employed by the hospital. The trial court directed a verdict in favor of the hospital but later ordered a new trial, and the hospital appealed to the district court of appeal, second district, division 1, California.

It was not disputed that a charitable hospital, not negligent in the selection of its servants, is immune against the claims of patients injured through the negligence of hospital servants. The plaintiff argued, however, that California decisions base this exemption from liability on the theory of implied contract —that is, that one who accepts the benefits of a charitable hospital exempts his benefactor from any liability for the negligence of the benefactor's servants. She contended, therefore, that as at the time she was injured she was an infant incapable of contracting, no implied contract could be imputed to her, and that since the reason of the rule of nonliability was not applicable, this case did not come within the rule.

The courts in the various American jurisdictions, said the district court of appeal, are almost unanimous in holding that charitable hospitals are immune against the claims of patients who suffer injuries through the negligence of hospital servants. There is a wide divergence, however, in the theories adopted to support this doctrine of nonliability. We do not feel it necessary, said the court, to make a judicial declaration as to the doctrine which should be considered as forming the proper basis for the doctrine of nonliability. In arriving at this conclusion we are moved to quote from the opinion of the United States circuit court of appeals, in *Powers* v. *Massachusetts*

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Homeopathic Hospital, 109 Fed. 294, 65 L. R. A. 372, in which the author of the opinion made an exhaustive review of the cases in which this question was considered:

> Though we feel constrained to differ from the reasoning followed by some other courts in reaching the same conclusion, we are not unmindful that the identity of conclusion reached, though by different roads, is a strong proof of its correctness. Doubtless a weight of authority is more overwhelming if it is identical in reasoning as well as in result, but identity of result is in itself no mean argument for its justice.

No case, continued the court, has been brought to our attention in which the rule of nonliability of charitable institutions is recognized, in which an exception has been made to its application on the ground that the injured person was a minor.

The district court concluded that the trial court erred in granting the plaintiff a new trial and ordered that a judgment be entered in favor of the defendant hospital.—*Shane v. Hospital of the Good Samaritan (Calif.), 37 P. (2d) 1066.*

Malpractice: Burn Following Application of Diathermy.— The plaintiff consulted the physician-defendant, a specialist in dermatology, relative to a ringworm infection on the fingers and under the finger nails of both his hands. To remove the nail of the little finger of the left hand, to sterilize the space beneath the nail and to kill the organism in the nail bed, the defendant administed procaine hydrochloride and epinephrine [suprarenin] locally and applied diathermy. Within a few hours the finger began to pain the patient severely and a blister formed. The finger became blackened and mummified and eventually the terminal joint of the finger and one half of the intermediate joint had to be amputated. Claiming that the defendant had subjected his finger to excessive heat, the patient instituted the present action for malpractice against him.

At the trial, a dermatologist, the plaintiff's brother-in-law, testified that the defendant admitted to him that he had made a mistake and must have given the patient "a pretty heavy shot," by which the witness understood the defendant to mean that he had overexposed the finger to diathermy. This witness stated that the condition of the patient's finger was due to a burn. The defendant denied the conversation attributed to him and testified that the heat administered was not excessive and the attention given to the patient was such as would be approved by medical authorities. He denied that the finger had been burned and stated that its condition resulted from gangrene, which, he "surmised," was attributable to the epinephrine. Two dermatologists testified on behalf of the defendant that the procedure pursued by him was such as was approved by the highest medical authority. The court directed a verdict for the defendant and the plaintiff appealed to the Court of Appeals for the District of Columbia.

We are of the opinion, said the court, that the lower court erred in directing a verdict for the defendant. It is familiar law that "where uncertainty as to the existence of negligence arises from a conflict in the testimony or because, the facts being undisputed, fair-minded men will honestly draw different conclusions from them, the question is not one of law but of fact to be settled by the jury." *Gunning* v. *Cooley*, 281 U. S. 90, 50 S. Ct. 231. While the failure of an operation alone creates no presumption of lack of skill or care, it is a circumstance entitled to some consideration, when coupled with the testimony. *Crist* v. *White*, 62 App. D. C. 269, 66 F. (2d) 795. The case presented a question of fact for the jury and the Court of Appeals accordingly reversed the judgment of the trial court in favor of the defendant and ordered a new trial.—*Weisenberg v. Hazen (District of Columbia), 73 F. (2d) 318.*

Poisons: Liability of Druggist for Selling Poison to Adult Imbecile.—The plaintiff's imbecile daughter, an adult, ordered by telephone a quantity of carbolic acid from a drug store operated by the defendant. The poison was delivered to the daughter, who, "being ignorant of its deadly quality and being demented and irresponsible, drank same . . . and in consequence thereof died." The plaintiff sued the defendant for the death of her daughter. The trial court dismissed the suit on the ground that the petition set forth no cause of action. The court of appeal of Louisiana affirmed this ruling and the plaintiff petitioned the Supreme Court of Louisiana for a review of the adverse decision.

Among the acts of negligence alleged in the plaintiff's petition was the defendant's failure to comply with a regulation of the Louisiana state board of health requiring dispensers of poisons to keep a written record of all sales. The lower court correctly concluded, said the Supreme Court, that there was no causal connection between the death of the plaintiff's daughter and the failure of the defendant to keep the proper record. The plaintiff further alleged, however, that, if the defendant's clerk had attempted to obtain from the daughter all the information which under the state board of health regulation should have been recorded, he would necessarily have discovered, in the telephone conversation with her, that she was wholly irresponsible. In other words, it was alleged that the defendant's agent had the opportunity of learning the true facts relating to the mental condition of the plaintiff's daughter and failed to avail himself of that opportunity. Thus the petition contained a direct charge that the defendant's agent was negligent in dispensing the drug. It was the clerk's duty, said the court, to make inquiry as to the purpose for which the drug was ordered. If the plaintiff's daughter was, as alleged, an imbecile, and if the defendant's clerk could have gained knowledge of that fact through the process of getting such information as the law requires, and which he, as a druggist, was in duty bound to get, his failure to get that information was a breach of duty which he owed to the imbecile daughter. A druggist, continued the court, can no more escape liability to a parent for placing a poison in the hands of an imbecile who is of age, where injury or death results from the use of it, than he could if he had placed it in the hands of an infant, if the infant had swallowed it and died as a result. Even in the absence of a special statutory regulation requiring druggists who dispense poisons to obtain information as to their intended use and to record the same, said the court, they are liable for such damage as may result from their negligent handling of such drugs.

The plaintiff alleged furthermore that had the defendant's agent, who delivered the package containing the carbolic acid to the plaintiff's daughter in person, exercised proper precaution, he would have discovered that she was idiotic and irresponsible. The defendant, in answer to this contention, argued that it was hardly probable that the deliveryman knew the contents of the package and therefore it was not incumbent on him to exercise precaution. But, answered the court, this is a matter which pertains to the evidence. In determining whether the petition sets out a cause of action, the court cannot indulge in speculations as to what a plaintiff may be able to prove on the trial of the case.

In the opinion of the Supreme Court, the plaintiff's petition did set forth a cause of action. The court therefore ordered the case remanded to the trial court to be reinstated on the docket.—*Trumbaturi v. Katz & Besthoff (La.), 158 So. 16.*

Malpractice: Standard of Skill and Care Required of Specialist; Necessity for Expert Testimony.—To facilitate the delivery of the plaintiff's child, the physician-defendant, a specialist in obstetrics, made an incision in the plaintiff's perineum. After delivery the incision was sutured, and the sutures were removed a few days later. On the eleventh day after delivery the patient was discharged from the hospital with instructions to call on the physician-defendant four weeks later for examination. According to the plaintiff's testimony in the trial that followed, a few days after leaving the hospital she noticed pus coming from the "sutured holes" and felt pain; she telephoned to the defendant and reported the facts to him immediately; thereafter she called him five or six times during the following two weeks, but each time she was told to wait until six weeks after delivery for a further examination. The physician-defendant, however, denied that the plaintiff ever informed him during the period stated of a discharge of pus and in fact had no recollection that she had telephoned to him at all. At the end of the six weeks period after delivery, he examined the plaintiff and observed what appeared to be a dimple in the skin at the bottom of the incision that he had

made, but he was unable to insert a probe into it. About three weeks later he found a small sinus, opening at the point where the dimple had been. He treated it by irrigation, curettement and the application of silver nitrate. The plaintiff, however, found her way into the hands of another physician, who operated twice to excise the sinus. After the second operation, at which time he discovered an opening into the rectum, the patient promptly recovered. She then sued the physician-defendant. A verdict in her favor was set aside on motion of the defendant and she appealed to the Supreme Court of Errors of Connecticut.

The plaintiff contended that the physician-defendant, having been informed concerning the presence of pain and of pus, was negligent in not discovering her condition more promptly. The defendant denied that he had been so informed. The Supreme Court of Errors pointed out that one who holds himself out as a specialist in the treatment of a certain organ, injury or disease is bound to bring to the aid of one employing him that degree of skill and knowledge which is ordinarily possessed by those who devote special study and attention to that particular organ, injury or disease, its diagnosis and treatment, in the same general locality, having regard to the state of scientific knowledge at the time. It was the duty of the defendant to exercise that degree of skill at the time of his employment, in determining the nature of his patient's ailment as well as in the treatment of it. There was evidence before the jury, said the court, which, if believed, would support the finding that the physician-defendant failed to use proper care, in that he did not see the plaintiff more promptly after being informed of her condition after she had left the hospital, provided the jury believed that she informed him of it.

But, said the court, the question presents itself as to whether the physician-defendant's failure to see his patient more promptly caused any injury to her. The uncontradicted medical testimony was that the method of treatment employed by the physician-defendant was proper. Whether it would have effected a cure if it had been applied more promptly was not shown by the testimony. One expert witness did testify that a sinus could be better treated at an early stage than at an advanced stage but that no one could tell whether irrigation or cauterization with silver nitrate would have cleared up the patient's condition. The probability of effecting a cure by various methods involves questions requiring the special knowledge of expert witnesses and is a field in which it is not permissible for laymen, as nonexperts, to set up any artificial standards as to methods of treatment or probability of cure. The jury were left purely to speculation as to whether the conduct of the defendant was a cause of the plaintiff's subsequent condition, and under the circumstances the trial court did not err in setting aside the verdict.—*Green v. Stone (Conn.), 176 A. 123.*

Malpractice: Failure of Physician to Remove Bean from Ear.—The plaintiff, it was alleged, put a bean into his ear. He was taken to a hospital, where an unsuccessful attempt was made by a house officer to remove the bean. The physician-defendant in this case, who had specialized in diseases of the ear and the throat for over fifteen years, was then called. He examined the patient under ether but did not remove from the ear the bean supposed to be there. If there was a bean in the ear, the record does not show when and by whom it was removed. The patient, however, sued the physician-defendant because of his failure to remove it. The superior court, Suffolk County, Mass., directed a verdict for the defendant, and the plaintiff thereupon appealed to the Supreme Judicial Court of Massachusetts.

According to the record, the physician-defendant testified that he could look into the ear as far as the drum, that he "did not discover the bean," that if it was in the ear it was behind the drum, and that "if it was there at all" he could not see it. There was testimony, however, that at the time of his examination of the plaintiff's ear he told the plaintiff that he saw the bean and that it ought to be removed, and that he told the plaintiff's cousin, who accompanied the plaintiff to the hospital, that he saw the bean and would remove it.

The physician-defendant, said the Supreme Judicial Court, as a physician who had specialized in diseases of the ear and throat, owed his patient the duty of having and using in the operation the care and skill commonly possessed and exercised by similar specialists in like circumstances. There was no evidence that he did not possess the required care and skill. Whether, in operating on the plaintiff, he did not exercise them was the issue raised by the pleadings and the evidence. There was no direct medical evidence that he did not. Such a finding, if made, would have to be reached by way of inference by the jury from the circumstances shown in the evidence. Expert medical testimony is not always essential to proof of negligence or other malpractice of a physician. The jury could have found on the evidence that the defendant saw the bean but did not remove it. In the judgment of the court, the jury from the evidence and from their common experience and knowledge could, in the absence of some other explanation, have found that the defendant in failing to remove the bean failed to exercise the care and skill required of him as an ear specialist. The patient's exceptions were therefore sustained and the trial court erred in directing a verdict for the defendant.—*Gabrunas v. Miniter (Mass.), 193 N. E. 551.*

Malpractice: Care and Skill Required.—The patient fractured both bones of one of her legs, nearly severing the foot from the body. After the physician-defendant began treatment, gas gangrene developed and he amputated near the hip. His patient sued him for malpractice and from a directed verdict in his favor his patient appealed to the Supreme Court of Utah.

An expert witness testifying on behalf of the patient was asked to give his opinion of various steps in the method of treatment adopted by the physician-defendant. Then he was asked to give his opinion of the method of treatment as a whole. In a case such as this, said the Supreme Court, confusion often arises over a failure to distinguish between an expert's opinion as to what he regards as the proper method of treatment and his opinion as to whether or not the treatment conforms to what is generally accepted as the proper method. Questions asked this witness were fatally defective because they called for a comparison with only one opinion, his own, rather than with the opinion of a general group. The trial court correctly ruled out his answers.—*Coon v. Shields (Utah), 39 P. (2d) 348.*

Society Proceedings

COMING MEETINGS

American Academy of Tropical Medicine, St. Louis, Nov. 20-21. Dr. Earl B. McKinley, 1335 H Street N.W., Washington, D. C., Secretary.
American Association of Railway Surgeons, Chicago, November 13-15. Dr. Louis J. Mitchell, 86 E. Randolph St., Chicago, Secretary.
American Clinical and Climatological Association, Princeton, N. J., Oct. 21-23. Dr. Francis M. Rackemann, 263 Beacon Street, Boston, Secretary.
American College of Surgeons, San Francisco, October 28-November 1. Dr. George W. Crile, 40 East Erie St., Chicago.
American Society of Tropical Medicine, St. Louis, November 19-22. Dr. Alfred C. Reed, 350 Post Street, San Francisco, Secretary.
Association of American Medical Colleges, Toronto, Canada, Oct. 28-30. Dr. Fred C. Zapffe, 5 South Wabash Avenue, Chicago, Secretary.
Clinical Orthopedic Society, Indianapolis and Louisville, Nov. 15-16. Dr. J. E. M. Thomson, 1307 N Street, Lincoln, Neb., Secretary.
Inter-State Postgraduate Medical Association of North America, Detroit, October 14-18. Dr. W. B. Peck, 27 E. Stephenson St., Freeport, Ill., Managing Director.
Nevada State Medical Association, Elko, Oct. 25-26. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.
Omaha Mid-West Clinical Society, Omaha, Oct. 28-Nov. 1. Dr. J. D. McCarthy, 107 South 17th Street, Omaha, Secretary.
Pacific Coast Society of Obstetrics and Gynecology, Los Angeles, Nov. 6-9. Dr. T. Floyd Bell, 400 29th Street, Oakland, Calif., Secretary.
Radiological Society of North America, Detroit, Dec. 2-6. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.
Southern Medical Association, St. Louis, November 19-22. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Vermont State Medical Society, Rutland, Oct. 17-18. Dr. William G. Ricker, 33 Main Street, St. Johnsbury, Secretary.
Virginia, Medical Society of, Norfolk, Oct. 15-17. Miss A. V. Edwards, 1200 East Clay Street, Richmond, Secretary.
Western Surgical Association, Rochester, Minn., Dec. 6-8. Dr. Albert H. Montgomery, 122 South Michigan Boulevard, Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

10: 705-848 (Aug.) 1935

Clinical Observations on Syncope and Sudden Death in Relation to Aortic Stenosis. H. M. Marvin, New Haven, Conn., and A. G. Sullivan, Hot Springs, Ark.—p. 705.

Further Experiences with Total Thyroidectomy in Treatment of Intractable Heart Disease. S. A. Levine and E. C. Eppinger, Boston.—p. 736.

Coronary Arteriosclerosis, Coronary Thrombosis, and Resulting Myocardial Changes: Evaluation of Their Respective Clinical Pictures Including Electrocardiographic Records, Based on Anatomic Findings. O. Saphir, W. S. Priest, W. W. Hamburger and L. N. Katz, Chicago.—p. 762.

*The Heart in Typhoid Fever: Clinical Study of Thirty Patients. W. B. Porter and N. Bloom, Richmond, Va.—p. 793.

Use of Chest Leads in Clinical Electrocardiography. I. R. Roth, New York.—p. 798.

The Heart in Typhoid.—Of thirty typhoid patients Porter and Bloom state that 46.6 per cent showed significant changes in the electrocardiograms, although the changes were transient in nature. The fact that evidences of cardiac dilatation and heart failure were absent suggests that the pathologic changes which were responsible for the electrocardiographic alterations were either mild in degree or were localized. No disturbances of rhythm occurred; a gallop rhythm was not observed, and the symptoms of congestive failure were absent. From a clinical point of view the heart presents no significant problem in the treatment of typhoid. A study of the literature dealing with typhoid prior to the use of high caloric diets indicates that the toxemia of the disease was much greater and serious cardiovascular complications were common. In comparing the recent studies of Brow and their own studies with former ones the authors conclude that the reduction in the serious circulatory complications may be attributed to the character of the diet now employed in the care of typhoid patients.

American Journal of Diseases of Children, Chicago

50: 309-572 (Aug.) 1935

*Value of Convalescent Serum for Prevention of Common Contagious Diseases of Children. Camille Kereszturi, D. Hauptman and W. H. Park, New York.—p. 309.

Influence of Special Cereal Mixture on Infant Development. M. L. Blatt and I. E. Schapiro, Chicago.—p. 324.

Prenatal Conditions and Status of Infants at Birth: Observations. L. W. Sontag, S. I. Pyle and Jane Cape, Yellow Springs, Ohio.—p. 337.

Erythrocyte, Hemoglobin, Cell Volume and Color, Volume and Saturation Index Standards for Normal Children of School Age. E. E. Osgood and R. L. Baker, Portland, Ore.—p. 343.

Chronic Galactemia: Report of Case with Studies on Carbohydrates. H. H. Mason and Mary E. Turner, New York.—p. 359.

Respiratory Exchange in Children Following Administration of Various Carbohydrates: Relation to Curves for Blood Sugar. J. L. Law, with technical assistantce of H. Gay, Ann Arbor, Mich.—p. 375.

Choice of Formulas Made by Three Infants Throughout the Nursing Period. Clara M. Davis, Winnetka, Ill.—p. 385.

Blood Cells in Healthy Young Infants: II. Comparison of Routine and Special Technics in Differentiation of Leukocytes. A. H. Washburn, Denver.—p. 395.

Id.: III. Study of Six Hundred and Eight Differential Leukocyte Counts, with Final Report on Nine Hundred and Eight Total Leukocyte Counts. A. H. Washburn, Denver.—p. 413.

Convalescent Serum for Prevention of Contagious Diseases.—For the last three years Kereszturi and her co-workers used convalescent serum prophylactically without quarantine against measles, German measles, chickenpox, whooping cough, scarlet fever and mumps in 1,717 hospital admissions. In cases of whooping cough, scarlet fever and German measles neither the controls nor the treated patients showed any cross infections. After one outbreak of mumps no second case was observed either among the treated or among the untreated patients. In a second outbreak the controls showed an incidence of cross infection of 2.8 per cent, whereas the treated patients showed none. In one outbreak of chickenpox, no cross infection was noted in either group. However, in the second outbreak the treatment with serum seemed to fail. In this one, among the untreated group the frequency of cross infection was 1.5 per cent; among the treated group the rate of cross infection was 15 per cent. The different outbreaks of measles produced different amounts of cross infection, the rate varying from 0 to 22 per cent among the treated patients and from 0 to 50 per cent among the controls. The average rate of cross infection in the different outbreaks of measles was 7 per cent among the treated patients and 25 per cent among the controls. The authors were unable to draw conclusions about the ideal time to collect convalescent serum or about the optimal prophylactic dose of the serum. After their experience they are convinced that, unless control patients are observed simultaneously with treated patients, one cannot determine the value of the convalescent serum.

American Journal of Psychiatry, New York

92: 1-258 (July) 1935

Presidential Address: Administrative Psychiatry. C. F. Williams, Columbia, S. C.—p. 1.

Charles Frederick Williams, M.D., President, 1934-1935: Biographic Sketch. E. L. Horger, Columbia, S. C.—p. 13.

Postencephalitic Behavior Disorders: Ten Year Review of Franklin School. E. D. Bond and L. H. Smith, Philadelphia.—p. 17.

Theory of Chaotic Sexuality. A. J. Rosanoff, Los Angeles.—p. 35.

Encephalographic Studies in Mental Disease: Analysis of One Hundred and Fifty-Two Cases. M. T. Moore, D. Nathan, Philadelphia; Annie R. Elliott and C. Laubach, Norristown, Pa.—p. 43.

Utilizing Institutionalized Mental Patients to Influence Other Patients Psychotherapeutically. F. Storchheim, Wauwatosa, Wis.—p. 69.

Chemical Studies in Epileptic Syndrome: II. Nocturnal and Diurnal Rhythm in Blood Chemistry. Helen Hopkins, Los Angeles.—p. 75.

Psychiatric Concept of Acute Alcoholic Intoxication. R. Fleming, Boston.—p. 89.

Some Results Obtained with Rorschach Test, Objectively Scored. W. Line and J. D. M. Griffin, Toronto.—p. 109.

Relationship Between Various Emotional Disturbances and Sugar Content of Blood. E. F. Gildea, Virginia L. Mailhouse and D. P. Morris, New Haven, Conn.—p. 115.

Meteorologic Factors in Mental Diseases. E. T. Hoverson, Chicago.—p. 131.

Varieties of Homosexual Manifestations. G. S. Sprague, White Plains, N. Y.—p. 143.

Teaching Psychiatry: Vermont Plan. J. C. O'Niel, Burlington, Vt.—p. 155.

The Humm-Wadsworth Temperament Scale. D. G. Humm and G. W. Wadsworth Jr.—p. 163.

Aschner Treatment of Schizophrenia: Therapeutic Note. K. E. Appel, C. B. Farr and F. J. Braceland, Philadelphia.—p. 201.

Rôle of Occupational Therapy in Modern Psychiatry. Minna Emch, Worcester, Mass.—p. 207.

Father Divine: Holy Precipitator of Psychoses: Report of Three Cases. J. A. Brussel, Brentwood, L. I., N. Y.—p. 215.

American Review of Tuberculosis, New York

32: 1-126 (July) 1935

Results of Surgical Treatment of Pulmonary Tuberculosis. C. A. Hedblom, Chicago.—p. 1.

Apical Thoracoplasty. F. S. Dolley, Los Angeles.—p. 32.

Phrenicectomy in Closing Pulmonary Cavities and End-Results. O. A. Beatty, Waverly Hills, Ky.—p. 41.

Cultural Characteristics of R1 Strain of Tubercle Bacillus, with Particular Reference to Dissociation. G. R. Dowd, Saranac Lake, N. Y.—p. 50.

Bacteriologic Study of Attenuated (R1) Tubercle Bacilli Recovered from Silicotic and Normal Guinea-Pigs. G. R. Dowd, Saranac Lake, N. Y.—p. 62.

*Observations on Multiple Tuberculous Calcifications. H. C. Sweany, Chicago.—p. 73.

Pharmacologic Action of Tuberculoprotein in Normal and Tuberculous Animals. M. I. Smith, Washington, D. C.—p. 98.

Multiple Tuberculous Calcifications.—After studying more than 600 necropsies of multiple pulmonary calcifications, Sweany concluded that any parenchymal tuberculous lesion that does not excavate into a cavity may become calcified, if the time is sufficiently long. Perhaps the most common form of multiple calcification is the calcified acinous-nodose clusters of tubercles representing the most common form of tuberculous reinfection. Such tubercles are frequently found in healed minimal and moderately advanced lesions of long standing. Occasionally they appear in healed advanced disease. They are usually asymmetrical, angular, poorly encapsulated and

poorly infiltrated with calcium. Next in importance is the hematogenic seeding, which is quite variable as the various reports indicate. The older work considers that the hematogenic origin of pulmonary localizations is common and that the latter are to be found in calcified residues as discrete miliary tuberculous, dense fibrous tuberculous and diffuse fibrous tuberculous. Since the author has established by complete reports in his presentation that certain forms of bilateral calcifications can be only hematogenic, it follows that the early bilateral seeding coming at one time or in showers, as suggested by Huebschmann and others, has been confirmed. While isolated unilateral localizations may occur by the blood stream, particularly in the apex, and in certain regions of the lung, as suggested by Huebschmann, the majority of asymmetrical seedings must be looked on as bronchogenic until more evidence is produced than there is at present. Some forms of asymmetrical seeding appear to be a type of calcification resulting from a complete or partial resolution of an infiltrating benign type of lobar tuberculous pneumonia. This type seems to occur as a part of primary infection or an infection in a host having had only an insignificant primary. Acute pneumonic consolidation may be due to atypical forms that are not sufficiently protected to survive and cause typical caseation, as in a true caseous pneumonia. The only other explanation is to assume an inspiration of a few bacilli into each of several hundred foci and around each of which there forms a perifocal reaction. The author believes there is no fixed form of benign lobar pneumonia but a series of transition forms from the so-called benign types through to the most caseous types. Regarding the pathogenesis of many of the forms formerly described as dense and diffuse fibrous tuberculous, he believes that the strictly hematogenic origin of all these forms is open to question. Most of them have a hematogenic aspect, but the encroachment on bronchi by the formation of such large masses can scarcely be avoided. In some cases the hematogenic origin seems to be the only possible source, yet the calcifications do not vary greatly from those cases in which the route seems to be suggestive of a bronchogenic origin. Bronchogenic seeding may simulate the hematogenic and vice versa, and seeding may come by the two routes simultaneously. The uniform seeding by round shotlike nodular tubercles is obviously not on the same basis as any of the foregoing groups. In this type there is a strong resemblance to primary tubercles microscopically. They are evenly distributed throughout and they may have been laid down during the anteallergic period of the disease when the allergy-immunity complex has not been well developed. This is manifest, first, because the tubercles resemble the primary type in every way. There are usually two ages of "primary" tubercles present, a true early single primary and then the many small primary-like lesions. Again, the localizations extend evenly all the way to the base. In hematogenic seedings in late reinfection there is a tendency for the seeding to be more exaggerated in the upper parts of the lungs.

Annals of Internal Medicine, Lancaster, Pa.

9: 115-218 (Aug.) 1935

*Acute Cor Pulmonale. P. D. White, Boston.—p. 115.

Effect of Vibratory Stimulation on Neutrophilic Index. J. C. Healy, Marion H. Sweet and F. P. Chillingworth, Boston.—p. 123.

*Study of One Hundred and Eighteen Readmissions to Oakhurst Sanatorium of Grays Harbor County, Washington. H. L. Hull, Yakima, Wash.—p. 134.

Myasthenia Gravis: Sixth Report. W. M. Boothby, Rochester, Minn. —p. 143.

Recent Studies on Antihormones. J. B. Collip, Montreal.—p. 150.

Experimental Air Embolism. J. B. Wolffe and H. F. Robertson, Philadelphia.—p. 162.

Recent Advances in Carbohydrate Metabolism, with Particular Reference to Diabetes Mellitus. C. N. H. Long, Philadelphia.—p. 166.

Incidence of the Clinical Types of Syphilis in Males, in Pregnant and Nonpregnant Females. W. C. Menninger, Topeka, Kan., and J. E. Kemp, Chicago.—p. 175.

Clinical Study of Mild Grades of Hypothyroidism. B. P. Seward, Roanoke, Va.—p. 178.

Pernicious Anemia with Normal Blood Picture. C. H. Sanford, Memphis, Tenn.—p. 189.

Acute Cor Pulmonale.—Four cases are cited by White, who believes they illustrate the various features of the acute cor pulmonale: dilatation of the pulmonary artery and right heart chambers with or without failure, which results from a sudden great obstruction to the pulmonary circulation, best exemplified by massive pulmonary embolism. There have been ten other cases in the last two years that have shown some of the features noted in the four cases. In the fourteen cases the diagnosis of pulmonary embolism was confirmed either by necropsy, in five of the six fatal cases, or by adequate clinical evidence, including roentgen examination. Only rarely, however, are all the signs and symptoms that may be said to mark the acute cor pulmonale present in the same case at the time of observation. To encounter a case with just the right amount of pulmonary arterial obstruction at just the right time is rather a fortuitous occasion and yet doubtless not especially rare in the work of any very active practitioner. If the pulmonary arterial obstruction is too overwhelming and complete, death may ensue quickly or a serious state of shock, which depletes the circulation and prevents the overburdening of the right side of the heart. In such cases the signs of the acute cor pulmonale are missing until after the state of shock has subsided. If, on the other hand, the embolus is small or of only moderate size, blocking only one large or small pulmonary arterial branch or several small branches, the obstruction may be too slight to dilate the right ventricle. Experiments on animals have shown that the right side of the heart can stand the strain of the blocking of either one of the two pulmonary arteries without dilating; that is, without the occurrence of the acute cor pulmonale. Finally, the existence of the maximal stage of the acute strain on the right side of the heart may be brief, a matter of hours sometimes rather than days, and then the physician may make his examination only after the acute cor pulmonale has in part or wholly subsided. In the diagnosis of the acute cor pulmonale the author discusses the recent circumstances, onset, early signs (which include increased prominence and pulsation, noted by inspection and palpation, in the region of the second and third intercostal spaces just to the left of the sternum, friction rub, gallop rhythm, dilatation and increased pulsation of the jugular veins and cyanosis), course, and roentgen and electrocardiographic evidence. In the differential diagnosis of the acute cor pulmonale the four conditions that are to be particularly considered are coronary thrombosis, dissecting aortic aneurysm, pulmonary collapse or spontaneous pneumothorax and pulmonary edema from heart disease with or without cardiac asthma. An additional point of importance favoring the diagnosis of coronary thrombosis is a past history of angina pectoris. The absence of any evidence of important heart disease before the attack, in the form of aortic valve disease, hypertensive heart disease, recent coronary thrombosis or marked mitral stenosis, helps to rule out pulmonary edema of cardiac origin and cardiac asthma. The treatment of the acute cor pulmonale is, in part, that of the underlying disease, namely pulmonary embolism, which in very severe cases may necessitate the attempt at pulmonary embolectomy. Before proceeding with this serious operation in somewhat doubtful cases, the diagnosis should be confirmed by the finding of various signs of the acute cor pulmonale. Whether or not digitalis may be helpful in supporting the right ventricle in its strenuous work in these cases, the author does not know; he sees no reason why it should not be given in fairly full but not toxic doses.

Tuberculous Readmissions to Oakhurst Sanatorium.—Hull presents statistics from Oakhurst Sanatorium concerning 118 discharged tuberculous patients, who required readmission once or more than once. Education of the sanatorium patient concerning tuberculosis and his own particular infection must be emphasized, but it is not sufficient to prevent the necessity of readmission (10 per cent in this series). Too short a stay in the sanatorium is a large factor in requiring readmission. The longer the patient remains in the institution, the less likely is the necessity of his readmission because of reactivation of the disease or tuberculous complications. More beds for convalescent or "exercise" cases should be available in each institution and a longer period of observation should be possible, under fairly strenuous living conditions, before discharge. The married woman required readmission more than the single man or woman. The age period between 18 and 32 years is that in which most readmissions are necessary. This corresponds with the mortality curve for tuberculosis. Leaving the

institution against medical advice accounted for 25 per cent of readmissions. In the remaining cases the cause was considered unavoidable. More adequate follow-up work after discharge is necessary.

Archives of Otolaryngology, Chicago

22: 131-276 (Aug.) 1935

Treatment of Thrombosis of Lateral Sinus: Summary of Results Obtained During Twelve Years at Massachusetts Eye and Ear Infirmary. P. E. Meltzer, Boston.—p. 131.
Radical Mastoidectomy in Adults with Aural Tuberculosis and Active Pulmonary Tuberculosis. I. Muskat, Chicago.—p. 143.
Osteoma of Frontal Sinus: Review of Literature and Report of Case Presenting Extended Invasion of Orbit. W. L. Gatewood and N. Settel, New York.—p. 154.
Effects of Irradiation on Allergic Nasal Mucosa: Final Report. L. B. Bernheimer, Chicago.—p. 165.
Nucleic Acid and Nucleotide Therapy in Nasal Diseases: Contributions to Study of Chemical Aspects of Nasal Diseases. S. L. Ruskin, New York.—p. 172.

California and Western Medicine, San Francisco

43: 105-176 (Aug.) 1935

Problem of Immunization Against Poliomyelitis. E. W. Schultz and L. P. Gebhardt, Stanford University.—p. 111.
*Blood Cultures in Brucella Infections (A New Method). B. Stewart, B. Eddie, F. Paxton and K. F. Meyer, San Francisco.—p. 112.
Development of Psychiatry. H. D. Eaton, Los Angeles.—p. 115.
Rapidly Developing Cataracts After Dinitrophenol. W. W. Boardman, San Francisco.—p. 118.
Regulation of Professions by State: Right to Regulate, Reasons Therefor, Methods in Use, and Attitude of Regulatory Bodies and Courts, with Relation Thereto. L. Browne, San Francisco.—p. 119.
Poliomyelitis—The Los Angeles Epidemic of 1934. R. W. Meals, V. F. Hauser and A. G. Bower, Los Angeles.—p. 123.
Orthopedic Treatment of Chronic Arthritis. E. Jones, Los Angeles.—p. 125.
Dysovulation. S. Hirshfeld, Los Angeles.—p. 129.
Brucella Abortus Agglutinins: Study of Their Incidence in Blood of General Population of City and Several Rural Communities in California. C. Emelia Peterson, San Francisco.—p. 132.
Comparative Carcinogenic Potency of Common Agents. E. Bogen and R. N. Loomis, Olive View.—p. 135.
Pertussis—Its Bacteriologic Diagnosis. J. J. Miller Jr., San Francisco.—p. 138.
Strabismus—Present Status of Its Treatment. G. N. Hosford, San Francisco.—p. 143.

Blood Cultures in Brucella Infections.—As aids in preparing blood cultures in undulant fever, Stewart and his associates recommend the following procedures: 1. For citrated and inactivated blood, medium sized pyrex test tubes containing from 0.1 to 0.2 cc. of a sterile 20 per cent solution of sodium citrate or 1 cc. of a 1.6 per cent solution of sodium citrate in a 0.85 per cent solution of sodium chloride are prepared and kept on hand. The tubes are closed with rubber stoppers. For the blood culture, from 5 to 10 cc. of blood is withdrawn from a vein and mixed thoroughly with the citrate solution. The tube with the citrated blood is transferred for fifteen minutes to a water bath registering 132.8 F. Subsequently, from 0.5 to 1 cc. of the liquid blood is removed and spread over large liver agar slants. Part of the tubes are sealed, part held in jars under 10 per cent carbon dioxide and the remainder left aerobically. All tubes, together with the unused portion of the citrated-heated blood, are held at 98.6 F. At regular intervals, liver agar slants are inoculated by means of a loop from the citrated blood tube. Growth may be noted in from three to forty days. The slants, which reveal growth, are put through the usual tests. It is advisable to incubate the tubes containing the blood for at least two and one-half months. 2. For blood treated with sodium polyanetholsulphonate, pyrex tubes containing 2 cc. of a 1 per cent aqueous solution of sodium polyanetholsulphonate are prepared and kept on hand. In preparing blood cultures, 10 cc. of blood is placed aseptically into the tubes, sealed with a rubber stopper and incubated at 98.6 F. for from ten to thirty days, and transplants are prepared on liver agar as under the first method. During the last ten months these principles were applied to the clinical study of Brucella patients. The results surpassed all expectations. Brucella bovis infections, although suspected on account of their history, failed to yield positive blood cultures. In a series of sixteen patients, two furnished typical Brucella abortus type bovis cultures in the citrated and heated blood, and one by spreading the blood on liver agar slants. The unheated blood of the same patients enriched in brain broth remained sterile. Equally conclusive were the results obtained on the blood specimens secured from slaughterhouse employees and one laboratory worker. Despite a high agglutination titer and high phagocytic index, cultures were obtained as late as the seventy-sixth day after the onset of the disease. In fact, this series of blood cultures on sixteen patients yielded positive results in fourteen, or 87.5 per cent.

Canadian Medical Association Journal, Montreal

33: 125-242 (Aug.) 1935

General Pathologic Conception of Cancer. J. Ewing, New York.—p. 125.
*Effects of High Carbohydrate-Low Calory Diet on Carbohydrate Tolerance in Diabetes Mellitus. I. M. Rabinowitch, Montreal.—p. 136.
Evidence in Favor of a More Active Puerperium: Study of Five Hundred Cases. H. B. Atlee, Halifax, N. S.—p. 144.
Operative Repair of Cleft Palate. A. B. LeMesurier, Toronto.—p. 150.
Some Cases of Rhinoplasty for Nasal Deformities. J. N. Roy, Montreal.—p. 158.
Some Practical Points in Relation to Breast Tumors. J. Miller, Kingston, Ont.—p. 161.
Erythremia Complicated by Ascites: Case. A. E. Wilson and P. H. Sprague, Edmonton, Alta.—p. 167.
Eight Hundred Spinal Anesthesias According to Howard Jones' Method. F. Trempe, Quebec.—p. 169.
Eczema. H. Orr, Edmonton, Alta.—p. 173.
Ready Made Remedies. V. E. Henderson, Toronto.—p. 176.
*Rapid Test for Syphilis. G. F. Laughlen, Toronto.—p. 179.

High Carbohydrate-Low Calory Diet in Diabetes.—Rabinowitch summarizes his experiences with the high carbohydrate-low calory diet in fifty cases of diabetes in which the patients followed treatment carefully for a period of five years. The data indicate that this diet leads in the majority of cases to marked improvement in carbohydrate tolerance. The dosages of insulin required eventually in these cases were found to be less than with all other diets that have been used heretofore in the treatment of advanced diabetes mellitus. In twelve cases the insulin was discontinued entirely. The diet has the advantage over other diets which are also liberal with respect to carbohydrate in that it is more effective in improving carbohydrate tolerance. Aside from the general well being of patients, in common with other diets liberal with respect to carbohydrate content, it is more economical from the point of view of the cost of insulin. Experiences with this diet in general support the view that undernutrition is still an important principle in the treatment of diabetes, except that the term "undernutrition" has a somewhat different meaning now than in the days before insulin. The care with which the diabetic patient will follow treatment will be directly proportional to the simplicity with which it can be carried out.

Rapid Test for Syphilis.—Laughlen secures greater visibility in his agglutination test for syphilis by the addition of a water insoluble stain that colors or adheres to the suspended particles of the antigen but does not color the liquid in which they are suspended, thus affording a good contrast when agglutination occurs. Greater sensitivity and speed have resulted from coarsening the particles in the antigen suspension. Cholesterol, which does this to some extent, is supplemented by the addition of stain particles and balsam. The method employs drops on exposed slides, which results in concentration and faster reactions, and the readings, which are readily made in the gross, can conveniently be confirmed by the microscope. It employs a reagent that is difficult to prepare but is fairly stable and can be secured ready for use without further alteration or addition, thus avoiding any technical procedures that may be considered difficult. It offers advantages over other methods in that (1) it is more rapid and easier to perform, (2) the readings are more distinct because they depend on an agglutination of colored particles in an unstained medium, (3) as it resembles the methods employed in typing blood, hospital interns and others are familiar with the technic, (4) as the reagent is stable for at least several weeks it is ready for use in emergencies, (5) it affords a convenient means of grading the degrees of positivity, (6) accuracy has not been sacrificed to secure speed or simplicity and (7) the test requires only small amounts of materials. The author states that 400 specimens of blood and twenty spinal fluid samples taken for routine examination were tested by the method. They were then forwarded to the provincial and city health departments for routine tests. There was 98 per cent agreement between the agglutination and the Wassermann tests, and 99 per cent with the

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Kahn. Spinal fluids gave about the same percentage of agreement as did the blood samples. Several hundred agglutination tests on known positive blood specimens have also been performed, and this has demonstrated a close agreement with other methods and also that the time in which a reading can be made by the rapid method remains constant for each specimen, thus affording a ready means of indicating the degree of positivity. The author realizes that the results in less than 1,000 cases are insufficient to draw conclusions and that many similar comparisons must be made. It is apparent, however, that the test gives a high percentage of accurate results. As the readings are very definite and easily made, it may be possible to show a higher percentage of accurate results than is possible with other tests.

Delaware State Medical Journal, Wilmington

7: 159-182 (Aug.) 1935

Delaware in Figures. A. C. Jost, Dover.—p. 159.
Diphtheria Control Program. C. A. Sargent, Dover.—p. 164.
Laboratory Comments. R. D. Herdman, Dover.—p. 166.
Community Sanitation and Delaware's Opportunity. R. C. Beckett, Dover.—p. 168.
Survey of Results of Artificial Pneumothoraces on One Hundred and Thirty-Two Cases. L. D. Phillips, Marshallton.—p. 172.
Vaccination Without Compulsion. E. F. Smith, Dover.—p. 173.

Florida Medical Association Journal, Jacksonville

22: 49-94 (Aug.) 1935

Obstetric Liabilities. S. R. Norris, Jacksonville.—p. 61.
The Nervous Breakdown. H. M. Smith, Tampa.—p. 66.
Organized Labor and Railway Medicine. V. A. Lockwood, St. Augustine.—p. 71.
Comparison of Disease Incidence in Iowa and Florida, with Especial Reference to Effect of Climate on Incidence of Digestive Disease. P. B. Welch, Miami.—p. 72.

Iowa State Medical Society Journal, Des Moines

25: 427-470 (Aug.) 1935

Postoperative Pulmonary Complications. W. S. Middleton, Madison, Wis.—p. 427.
Fundamental Pathology in Progressive Tuberculosis, Primary and Reinfection. F. P. McNamara, Dubuque.—p. 433.
Amebiasis: Report of Six Cases. A. E. Feller and J. A. Greene, Iowa City.—p. 437.
The Patient-Physician Relationship Should Be Maintained. H. J. Hartman, Waterloo.—p. 440.
Health Insurance Is Not the Remedy. J. C. Hill, Newton.—p. 442.
The Psychiatrist and Internal Medicine. C. F. Obermann, Woodward. —p. 446.
*Valvular Endocarditis with Paradoxical Emboli. L. J. Dimsdale, Sioux City.—p. 448.
Acute Methemoglobinemia Following Exposure to Metadinitrobenzene and Metanitroaniline. B. B. Clark and W. D. Paul, Iowa City.—p. 449.

Valvular Endocarditis with Paradoxical Emboli.—Dimsdale presents the case of a woman, aged 25, who complained of weakness, feverishness, shortness of breath and sharp stabbing pains in various parts of the body for weeks. She continued her routine duties until she had a miscarriage of a pregnancy of three months. After four days she called a physician. While in the hospital, the patient continued to complain of sudden pains everywhere. She had pain in the left ankle, and several days later fluctuation at this point. An ounce of pus was drained from an abscess opened at this point. The patient lived for twenty-four days, during which time her temperature was septic in type, attaining a height of 108.4 F. and usually not less than 105 F. Fever, endocarditis, emboli and bacteremia were present. At necropsy the uterus and lungs as well as the abdominal viscera were studded with infarcts. Examination of the heart showed the valves of the left side to be perfectly normal, but large vegetative masses were noted on the valve flaps of the right side, thus substantiating the belief of the presence of an endocarditis. The latter finding would account for the pulmonic emboli but would not explain the emboli lodged elsewhere. To account for the latter a patent ductus arteriosus acting as a shunt between the pulmonary artery and the systemic aorta (this was not present) or a septal defect should have been present. A patent foramen ovale was found permitting the direct passage of blood from the pulmonary to the systemic side. The case is of interest in demonstrating the mechanism of paradoxical emboli and also in suggesting the possibility that the miscarriage was due to an infarct of the uterus with consequent separation of the placenta and abortion. The other possible explanation to be considered is that sepsis was the result of an induced abortion, although the patient stated that the abortion was not induced. The infection could then have been lodged and harbored in the heart valves and subsequently caused the picture described. In view of the fact that suggestive symptoms were present previous to the miscarriage, the author believes the former assumption is the more probable.

Johns Hopkins Hospital Bulletin, Baltimore

57: 47-110 (Aug.) 1935

*Bence-Jones Protein Excretion and Its Effects on Kidney. W. D. Forbus, W. A. Perlzweig, I. A. Parfentjev and J. C. Burwell Jr., Durham, N. C.—p. 47.
Pathogenesis of Lipoid Nephrosis and Progressive Glomerulonephritis. S. S. Blackman Jr., Baltimore.—p. 70.
Effect of Parathyroid Extract on Serum Calcium of Nephrectomized Dogs. R. Ellsworth and P. H. Futcher, Baltimore.—p. 91.
Adenoma of Adrenal Cortex Simulating Pituitary Basophilism (Cushing's Syndrome). R. M. Calder and F. W. Porro, Durham, N. C.—p. 99.

Bence-Jones Protein Excretion.—Forbus and his associates studied a case of Bence-Jones proteinuria in man, with especial reference to the effect of the excretion of large quantities of the protein on the kidney. They found that this excretion is accompanied by precipitation of the protein in the tubules in the form of peculiar casts having a fairly constant structure. These casts, being composed of an abnormal protein substance, completely obstruct the tubule and provoke a foreign body reaction, the microscopic picture thus produced apparently being specifically indicative of Bence-Jones proteinuria. The tubular obstruction results in extensive secondary changes in the kidney unit, leading finally to its destruction and its replacement by scar tissue. No evidence was found in support of the experimental idea that Bence-Jones protein is specifically toxic for the tubular epithelium. The injury to the epithelium is more logically viewed as a change secondary to the tubular obstruction. These studies of Bence-Jones proteinuria in man indicate that the excretion of this protein may be expected to produce a significant anatomic injury to the kidney, provided the quantity of protein excreted is relatively large and the duration of the proteinuria is prolonged. It is probable that disturbance in the kidney function will never be serious in any case but that some diminution in function will occur in all cases. The presence of a moderate persistent elevation of blood nonprotein nitrogen and a mild decrease in urea clearance in the presence of a persistent and relatively pronounced Bence-Jones proteinuria would therefore most likely establish the clinical diagnosis of a specific kidney lesion and make possible the prediction of the state of the kidneys with a fair degree of accuracy.

Journal of Nutrition, Philadelphia

10: 117-232 (Aug. 10) 1935

Modification of Sherman Method of Studying Multiple Nature of Vitamins, with Application to Vitamin G. T. S. Hamilton and H. H. Mitchell, Urbana, Ill.—p. 117.
Influence of Vitamin C Level on Resistance to Diphtheria Toxin: I. Changes in Body Weight and Duration of Life. C. G. King and Maud L. Menten, Pittsburgh.—p. 129.
Id.: II. Production of Diffuse Hyperplastic Arteriosclerosis and Degeneration in Various Organs. Maud L. Menten and C. G. King, Pittsburgh.—p. 141.
Ascorbic Acid (Vitamin C) in Sprouted Oats. R. Bogart and J. S. Hughes, Manhattan, Kan.—p. 157.
Studies of Crystalline Vitamin B: VI. Effect of Graduated Doses on Pigeons. R. E. Waterman and Marion Ammerman, New York.—p. 161.
Relationship of Vitamin D Intake of Hen to Antirachitic Potency of Eggs Produced. N. B. Guerrant, Elizabeth Kohler, J. E. Hunter and R. R. Murphy, State College, Pa.—p. 167.
Quantitative Experiments on Occurrence of Vitamin B in Organs. Jessie B. Brodie and Florence L. MacLeod, New York.—p. 179.
Effect of Dinitrophenol on Calcium and Phosphorus Metabolism. C. L. Robbins, New Haven, Conn.—p. 187.
Supplementary Values of Animal Protein Concentrates in Chick Rations. H. J. Almquist, E. L. R. Stokstad and E. R. Halbrook, Berkeley, Calif.—p. 193.
New Toxicant Occurring Naturally in Certain Samples of Plant Foodstuffs: IX. Toxic Effects of Orally Ingested Selenium. K. W. Franke and V. R. Potter, Brookings, S. D.—p. 213.
Id.: X. Effect of Feeding Toxic Foodstuffs in Varying Amounts and for Different Time Periods. K. W. Franke, Brookings, S. D.—p. 223.

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Kansas Medical Society Journal, Topeka

36: 265-308 (July) 1935

Tumors of the Heart. F. C. Helwig, Kansas City.—p. 265.
Auricular Fibrillation. C. Maher, Chicago.—p. 272.
Skull Fractures and Head Injuries. L. S. Nelson, Salina.—p. 275.

36: 309-352 (Aug.) 1935

Addison's Disease with Minimal Pigmentation: Case. H. N. Tihen, Wichita.—p. 309.
Frontal Sinusitis with Osteomyelitis and Frontal Lobe Brain Abscess Following Swimming. S. E. Roberts, Kansas City, Mo.—p. 312.
Neuralgias and Ear Symptoms Involved in General Diagnosis Due to Mandibular Joint Pathology. J. B. Costen, St. Louis.—p. 315.
Radium Treatment for Cancer of Cervix. P. Findley, Omaha.—p. 321.
Anaphylactic Shock from Use of Pituitrin in an Obstetric Case. F. W. Koons, Halstead.—p. 323.

New England Journal of Medicine, Boston

213: 195-244 (Aug. 1) 1935

Control of Measles. R. C. Eley, Boston.—p. 195.
*Whooping Cough, with Particular Reference to Prophylaxis and Treatment with Vaccines. F. C. McDonald, Boston.—p. 198.
Present Status of Scarlet Fever Prevention. G. W. Anderson, Boston.—p. 203.
Control of Diphtheria. E. S. Robinson, Jamaica Plain, Mass.—p. 208.
Hyperinsulinism. J. A. Barnes and E. L. Richmond, Worcester, Mass.—p. 225.
Brain Abscess as Complication of Septic Pleuropulmonary Disease. D. A. Nickerson, Boston.—p. 228.
Experiences in Ionization of Nasal Mucous Membrane. H. G. Tobey, Boston.—p. 230.

213: 245-286 (Aug. 8) 1935

Perforating Inflammation of Vermiform Appendix, with Especial Reference to Its Early Diagnosis and Treatment. R. Fitz, Boston.—p. 245.
Visual Disturbances with Digitalis Medication. W. H. Robey, Boston.—p. 248.
Natural History of Some Renal Tumors. E. R. Mintz, Boston.—p. 251.
Latent Syphilis. E. W. Karcher.—p. 257.
Myxedema Heart with Congestive Heart Failure and Polyserous Effusions. L. M. Hurxthal, Boston.—p. 264.
Cancer Education in Medical Schools. R. B. Greenough, Boston.—p. 267.

Whooping Cough.—McDonald states that the proponents of vaccine prophylaxis have offered a program that gives promise of preventing whooping cough in the young patient. The question naturally arises whether there are any serious contraindications to the use of the vaccine. Two deaths are reported in Madsen's series in infants vaccinated because there was whooping cough in the immediate family. These deaths occurred in an uncertain age period in which the vaccine may have played no direct part in the fatalities. However, the use of the vaccine, made from organisms grown on mediums enriched with human blood prepared as advocated by Sauer, appears reasonably safe and rational if given after the seventh month of life with the series completed at least four months before exposure. Sauer does not think that immunization should be attempted very soon after recovery from other diseases (measles) or within several months of other immunization (diphtheria, smallpox, scarlet fever). The Bordet-Gengou bacillus does play an important part in the disease picture of whooping cough. While vaccine therapy appears to be of doubtful value, vaccine prophylaxis as outlined by Sauer offers definite promise. However, several years of further use will be necessary for final evaluation.

Northwest Medicine, Seattle

34: 281-324 (Aug.) 1935

Some Aspects of Chronic Nephritis. F. R. Maddison, Tacoma, Wash.—p. 281.
Ureteral Transplantation: Its Present Status. C. E. Teel, Bellingham, Wash.—p. 286.
Transplantation of Ureter into Lower Large Intestine: Delayed Function Until Healing Occurs. W. J. Stater, Portland, Ore.—p. 289.
Applicability of Certain Surgical Procedures for Duodenal and Gastric Ulcer. V. C. Hunt, Los Angeles.—p. 291.
Early Cancer of Cervix Uteri: The Practicability of Its Recognition Before Stage of Ulceration. K. H. Martzloff, Portland, Ore.—p. 295.
Determination of the Sex of the Unborn Child. A. Mathieu, Portland, Ore., and A. Palmer, San Francisco.—p. 299.
Energy Requirements of the Sick: Some Conditions Which May Alter It. Leila Wall Hunt, Pullman, Wash.—p. 302.
Perineal Testicle Complicated by Acute Epididymitis: Case Report. F. W. Franz, Seattle.—p. 309.
Use of Placard in Communicable Disease Control. A. Weinzirl, Baltimore.—p. 311.
Morphine Addiction: Its Treatment by Autogenous Serum; Modino's Phlyctenar Method: Preliminary Report. T. D. Lee, Portland, Ore.—p. 313.

Pennsylvania Medical Journal, Harrisburg

38: 835-928 (Aug.) 1935

Work of the National Institute of Health. G. W. McCoy, Washington, D. C.—p. 835.
Preoperative Study of the Cataract Patient. H. H. Turner, Pittsburgh.—p. 840.
Erosion of Bone in Neighborhood of Auditory Canal Due to Neoplasms. W. P. Bailey and N. Gotten, Philadelphia.—p. 844.
Conservative Treatment of Vascular Spasm in Peripheral Vascular Disease. I. Starr Jr., Philadelphia.—p. 848.
Initial Weight-Loss Reduction in New-Borns. J. D. Donnelly, Ardmore.—p. 851.
Facial Paralysis from Acute Middle Ear Disease. H. Dintenfass, Philadelphia.—p. 854.
Brain Tumor: Report of Two Cases. R. A. Knox and G. W. Ramsey, Washington.—p. 857.
Etiology of Episcleritis. J. M. Griscom, Philadelphia.—p. 860.
The Preeclamptic Woman. F. B. Utley, Pittsburgh.—p. 862.
Lymphogranuloma Inguinale. S. L. Grossman, Harrisburg.—p. 866.
Etiology and Treatment of Acne Vulgaris: End Results in One Hundred and Sixty-Nine Cases. F. Amshel, Pittsburgh.—p. 869.

Public Health Reports, Washington, D. C.

50: 1087-1124 (Aug. 16) 1935

Control of Rabies in New York City. R. Olesen.—p. 1087.
Height and Weight of Children of Depression Poor: Health and Depression Studies No. 2. C. E. Palmer.—p. 1106.

Science, New York

82: 137-158 (Aug. 16) 1935

Progress in Medical Training and Research in U. S. S. R. A. A. Troyanovsky.—p. 137.
Acuity of Hearing. D. A. Laird, Hamilton, N. Y.—p. 153.
Nomenclature of Corpus Luteum Hormone. A. Butenandt, K. H. Slotta; W. M. Allen and G. W. Corner, Rochester, N. Y.—p. 153.
Crystalline Progestin and Inhibition of Uterine Motility in Vivo. W. M. Allen, Rochester, N. Y., and S. R. M. Reynolds, Brooklyn.—p. 155.
*Colloidal Dye Effective in Treating Pernicious Anemia and Evoking Reticulocytosis in Guinea-Pigs. Camille Mermod and W. Dock, San Francisco.—p. 155.
Deuterium as Indicator in Study of Intermediary Metabolism. R. Schoenheimer and D. Rittenberg, New York.—p. 156.

Colloidal Dye in Treatment of Pernicious Anemia.—Mermod and Dock confirmed the observation of Massa and Zolezzi that the intravenous injection of repeated doses of the mono-azo dye congo red produces effects quite similar to those of liver extract in cases of primary anemia. Their observations were made in two cases of untreated but mild addisonian anemia in which intravenous injections of 1.5 per cent congo red 4B in a 6 per cent solution of dextrose were used. One patient received 60 cc. in five days, the other 90 cc. in ten days; both had a rise in reticulocytes and a fall in serum bilirubin comparable to that produced in similar cases by intramuscular injections of liver extract. Congo red injected daily for five days into the peritoneal space of guinea-pigs produced a reticulocyte shower, maximal from five to seven days after beginning treatment with 30 mg. of dye daily. The reticulocytosis declined gradually, reaching the control level from ten to fourteen days after the peak. At that time large doses of potent liver extract were injected but caused no further reticulocyte response. Not only does congo red produce the same effect on normal guinea-pigs as potent liver extract, but the treatment, like that with liver, renders the animals refractory to liver therapy for a considerable period. These results can scarcely be accounted for by the widely current theory that pernicious anemia is cured and the reticulocyte response of guinea-pigs evoked by providing a substance needed for the maturation of red corpuscles. While the theory that pernicious anemia results from overactive blood destruction and can be corrected by blocking the reticulo-endothelial system might be satisfactory to account for the blood disturbances of addisonian anemia, it obviously fails to account for the glossitis and spinal cord lesions that often accompany the disease and are arrested by liver therapy. Congo red is notably effective in neutralizing toxic substances and it is more probable that in pernicious anemia and in normal guinea-pigs it assists in detoxification of substances, probably enterogenous in origin, that are hemolytic. These observations make imperative a further exploration of the old theory that pernicious anemia is due to excessive absorption or deficient detoxification of noxious substances derived from the gastro-intestinal tract.

Southern Medical Journal, Birmingham, Ala.

28: 679-772 (Aug.) 1935

Nonsuppurative Osteomyelitis: Diagnosis and X-Ray Treatment. J. T. Murphy, Toledo, Ohio.—p. 679.
Arterioles in Malignant Hypertension: Report of Case. J. F. Pilcher and E. H. Schwab, Galveston, Texas.—p. 688.
Transurethral Prostatic Resection: Report of Seven Hundred and Forty-Eight Cases. T. M. Davis, Greenville, S. C.—p. 693.
Latent Brain Abscess Secondary to Sphenoid Sinusitis: Case Report. M. A. Lischkoff, Pensacola, Fla.—p. 700.
Clinical Importance of Cholesterol. C. T. Stone, Galveston, Texas.—p. 705.
Pollinosis in the Southwest. E. D. Sellers, Abilene, Texas.—p. 710.
*Leukocyte Blood Pictures in Surgical Types of Infection. D. A. Robnett, Columbia, Mo.—p. 714.
Important Considerations in Prevention of Carcinoma of Cervix. W. Long, Oklahoma City.—p. 719.
*Endocrines in Gastro-Intestinal Disorders. D. L. Sexton, St. Louis.—p. 724.
Aspergillosis and Moniliosis: Case Report with Necropsy Findings. J. A. Reed, Washington, D. C.—p. 729.
Leprosy: Report of Twenty-Seven Cases Treated with Anthrax Vaccine. J. N. Roussel, New Orleans.—p. 730.
Malaria: Need for Continued Malaria Research. H. Hanson, Jacksonville, Fla.—p. 736.
Id: Report of the Subcommittee on Malaria Research of the National Malaria Committee. C. F. Craig, New Orleans.—p. 739.
Id: Recent Research on Malaria Plasmodia. H. E. Meleney, Nashville, Tenn.—p. 739.
Id.: Recent Research on Diagnosis of Malaria. W. Gingrich, Galveston, Texas.—p. 742.
Id.: Recent Research on Therapeutics of Malaria. H. C. Clark, Panama, Republic of Panama.—p. 746.
Id.: Recent Research on Malaria Therapy of Venereal Diseases: Review of Progress in New Rsearches of Malaria Therapy of Venereal Disease. B. Mayne, Columbia, S. C.—p. 750.
Id.: Some Recent Advances in Epidemiology of Malaria. G. E. Riley, Jackson, Miss.; E. C. Faust, New Orleans, and S. S. Cook, Washington, D. C.—p. 753.
Id.: Malaria Mortality in the Southern United States for the Year 1933. E. C. Faust and Celeste Goff Diboll, New Orleans.—p. 757.
Id.: Review of Malaria Control Activities in the Southern States During 1934. M. F. Boyd, Tallahassee, Fla.—p. 763.

Leukocytes in Surgical Types of Infection.—Robnett advocates a graphic method of recording total counts and neutrophil percentage for demonstrating by a curve or changing line the degree of resistance as weighed against the infection. This is of incomparable value in diagnosing infections, evaluating resistance, determining the need or the urgency of surgery and arriving at a prognosis based on other than guesswork. For this he uses a modification of the Gibson chart. One may see on this chart at a glance the changes from count to count and interpret the resistance units of disproportion indicated by a rising or falling line. As examples: 1. A rising neutrophil end of the line indicates a spreading infection, a new field of infection or an increasing virulence of the infecting agent. 2. A falling neutrophil end of the line indicates that the infection is being overcome or walled off or has been removed. If accompanied by a return of eosinophils or an increase in the percentage of eosinophils, there is no stronger indication that convalescence is established. 3. A rising total cell count end of the line indicates increase in resistance, and when resistance is in keeping with infection a horizontal line exists. 4. A falling total cell count end of the line, if the neutrophil end of the line remains stationary or rises, signifies a break in resistance, and the greater the disproportion between the two ends of the line the more grave the condition. 5. A falling total cell count end of the line, with a sharp rise in the neutrophil end, is an indication of gravity, with a decreasing resistance and an increasing or spreading infection. A blood count is indicative of the condition of the patient only at the time when the specimen of blood was obtained. The blood picture indicates that an infection is or is not present, and, if present, one must find it. In such diseases as pyelitis and cholecystitis, in which there are alternate periods of retention and drainage, the leukocyte count is subject to such changes that it must be interpreted with great caution.

Endocrines in Gastro-Intestinal Disorders.—Sexton discusses thyroid, parathyroid, gonadal, pituitary and adrenal disorders and their bearing on gastro-intestinal functions. In considering gastro-intestinal disorders of endocrine origin, such patients should have the benefit of a careful general examination, eliminating constitutional disease and its effect on the endocrine and gastro-intestinal systems, ruling out allergic reactions and finally eliminating the presence of organic disease of the gastro-intestinal tract through special studies. Altered functions of the endocrine system cause disturbances of the gastro-intestinal tract chiefly through an imbalance of the autonomic nervous system. Those gastro-intestinal disorders associated with an insufficient gonadal function are of greater significance and occur more often than in any other endocrine disturbance. The severity of gastro-intestinal symptoms is found to be dependent on the degree of autonomic imbalance and to a considerable extent on the habitus of the patient. Investigations have proved the tendency to subacidity in both hypothyroidism and hyperthyroidism. Gastro-intestinal hyperirritability is the rule in hyperthyroidism, while obstinate constipation is found in myxedema. In patients with gastro-intestinal complaints in whom malnutrition exists, a low basal metabolic rate should be considered with great caution as an indication of thyroid deficiency. Mild disorders of the adrenals and parathyroids are poorly understood, as are also any gastro-intestinal symptoms that may arise from them. The gastro-intestinal disturbances in the well developed adrenal and parathyroid disorders are recognized as playing a prominent part.

Tennessee State Medical Assn. Journal, Nashville

28: 315-360 (Aug.) 1935

Botulism. J. L. Cochran, Jackson.—p. 338.
Further Report on Surgical Treatment of Retinal Detachment. E. C. Ellett and R. O. Rychener, Memphis.—p. 348.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

43: 421-476 (Aug.) 1935

Concerning Deficiency and Insufficiency of Urethra. L. Fraenkel, Breslau, Germany.—p. 421.
Impedance Angle Test for Thyrotoxicosis. M. A. B. Brazier, London, England.—p. 429.
Rupture of Tendons: Report of Four Cases of Latent Rupture of Tendon of Extensor Policis Longus. J. H. Boyes, San Francisco.—p. 442.
Pneumohemothorax: Two Cases. W. B. Holden, Portland, Ore.—p. 445.
*Simplified One Stage Procedure for Cancer of Rectum (Combined Abdominoperineal). D. V. Trueblood, Seattle.—p. 447.

Simplified Procedure for Cancer of Rectum.—The abdominoperineal operation for cancer of the rectum that Trueblood submits requires two operating groups, one to work from above (in the abdomen) and one to work from below (anus and perineum). The patient is placed in the lithotomy position with the table tipped as for the Trendelenburg position. If a man, the penis, containing a catheter, and testicles are placed in a rubber glove, which is secured by a rubber band at its base. If a woman, the bladder is emptied and the vagina is prepared with the perineum. The surgeon opens the abdomen and determines whether or not the lesion is operable. If so, the crew detailed to work on the anus and perineum begins. The anus is cauterized by actual cautery, circumscribed by an incision and inverted with a suture; then the successive steps necessary to free the rectum with its fat from surrounding structures are performed. The author prefers using the radio-cautery rather than the knife for this work. While these operative steps are being performed, the abdominal group has severed the sigmoid, between clamps, with the cautery. The distal end is tied just below the clamp and tied again a little lower. The clamp is then removed and a piece of rubber dam is placed over the intestinal end and tied. The intestinal end is not inverted, thereby saving time and obviating the infection of an intestinal stitch. The rest of the abdominal procedure is as has been described so often by others. It is well, however, to tie off the superior hemorrhoidal artery as soon as possible so as to reduce the amount of bleeding in the operative field below. The two operative fields have been approaching each other and eventually meet, permitting the surgeon below to withdraw the distal sigmoid and rectum. The abdominal surgeon repairs the peritoneal floor of the pelvis, provides for the permanent colostomy, covers raw surfaces and closes the abdomen without drainage. The perineal surgeon places a rubber dam in the wound cavity and fills it with gauze. The two stages of the abdominoperineal operation have been performed simultaneously. The procedure offers the surgeon relief from the difficulties often found at the second opening of the abdomen; that is, adhesions or evidence that the cancer has grown rapidly during the interval.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

8: 467-530 (Aug.) 1935

Portable Direct-Reading X-Ray Dosage Rate Meter. G. W. C. Kaye and G. E. Bell.—p. 467.
New Instrument for the Measurement of Ionizing Radiations. T. A. Chalmers.—p. 479.
New, Simple and Compact X-Ray Meter. C. N. Rocky.—p. 481.
Roentgenologic Diagnosis of the Diseased Appendix. A. Orley.—p. 487.
Reduction in Multiplication of Protozoon (Bodo Caudatus) Caused by Exposure to Gamma-Ray Irradiation with Study of Sensitive Period in Life of Cell. M. Robertson.—p. 502.
Addendum: Radiation Field Near Flat Applicator. W. V. Mayneord.—p. 527.
Useful Carrier for Wet Films. H. Morris.—p. 529.

British Medical Journal, London

2: 243-286 (Aug. 10) 1935

Diseases of the Gallbladder. C. P. G. Wakeley.—p. 243.
Some Immunologic Aspects of Cure and Prevention of Diphtheria. J. Menton.—p. 246.
*Significance of Pyrexia in Chronic Pulmonary Tuberculosis. M. Myers.—p. 250.
Cushing's Syndrome: Case. W. Langdon-Brown and C. M. Seward.—p. 253.
Peritonsillar Abscess in Infancy with Records of Two Cases. A. Maclean.—p. 254.

Pyrexia in Chronic Pulmonary Tuberculosis.—Myers found that the various types of lesions in chronic pulmonary tuberculosis (as defined by Wingfield's classification) give rise, within limits, to characteristic changes in the temperature chart. Spread (activity) of the disease may occur in the absence of pyrexia. Many patients with quiescent pulmonary tuberculosis suffer from frequent bouts of pyrexia, or may even exhibit a constant mild pyrexia, without there being any evidence of spread of the disease. In view of the foregoing, it is possible that pyrexia in chronic pulmonary tuberculosis is often caused by infection of the tuberculous lesions by the organisms of the respiratory tract. Serial roentgenograms are the most reliable guide to the spread or retrogression of the actual tuberculous lesions, but the temperature chart, especially when considered in conjunction with these, gives essential and valuable information.

Glasgow Medical Journal

6: 49-104 (Aug.) 1935

Developmental Defects of Lens and Their Embryology. Ida Mann.—p. 49.
Thrombophlebitis Migrans: Two Cases. A. B. Walker.—p. 66.

Irish Journal of Medical Science, Dublin

No. **115:** 289-336 (July) 1935

The Mammal Before and After Birth. J. Barcroft.—p. 289.
Chemical Conditions of Mental Development. J. Barcroft.—p. 302.
Notes on Ayerza's Disease: Report of Case. E. T. Freeman.—p. 314.
*New Method for Treatment of Fracture of Lower Jaw. H. Meade.—p. 318.
Calcium and Phosphorus Metabolism in Health and Disease. W. A. Gillespie.—p. 320.

Treatment of Fracture of Lower Jaw.—Meade used Kirschner wires to hold the fragments in position in a fracture of the lower jaw, in which the wound on the right side of the face started behind and below the angle of the mouth and extended into the submaxillary region. It was septic and communicated with the lower jaw, which was fractured. The fracture was badly comminuted and extended from the canine to the second molar tooth. He injected the skin with a 1.5 per cent solution of apothesine. As the patient was only semiconscious, he did not consider any further anesthesia necessary. With his fingers in the mouth he pressed the fragments into position as well as he could and then drilled in two wires from the front toward the angle of the jaw, the wires crossing each other. There was no increase in the swelling of the soft tissues subsequent to this intervention. The edema decreased every day, as did the intensity of the head symptoms. Within a week the patient was perfectly conscious. The wound, however, was very septic and there was a free discharge of pus and saliva for the following three weeks. About a fortnight later a small piece of bone was removed, which was seen to be lying free in the wound. The patient had very little trouble with the wires. When he left the hospital five weeks later the wound was practically healed. The author has used the same method in another case of fracture of the jaw. This case was simpler, being a single fracture of the right side of the mandible, situated just behind the canine tooth. It was not comminuted. In the first case he had used an electric drill to insert the wires. On the second occasion he used a hand drill, so that he was unable to control the fragments with his fingers. He states that, when inserting the wire, one should try to avoid the roots of the teeth and the line of the inferior dental nerve. He recommends the use of an electric drill.

Journal of Anatomy, London

69: 399-542 (July) 1935

Early Human Embryo (No. 1285, Manchester Collection), with Capsular Attachment of Connecting Stalk. J. Florian and J. P. Hill.—p. 399.
Formation of Venous Valves, Foramen Secundum and Septum Secundum in Human Heart. P. N. B. Odgers.—p. 412.
Congenital Heart Disease with Single Arterial Trunk: Case. G. Davison.—p. 423.
Development and Histogenesis of Human Pineal Organ. R. J. Gladstone and C. P. G. Wakeley.—p. 427.
Terminal Part of Wolffian Duct. J. E. Frazer.—p. 455.
Anatomy of Major Duodenal Papilla of Man, with Especial Reference to Its Musculature. V. J. Dardinski.—p. 469.
Paraganglions and Carotid Body. A. Celestino Da Costa.—p. 479.
Observations on Structure of Uterus Masculinus in Various Primates. S. Zuckerman and A. S. Parkes.—p. 484.
Sensitivity of New-Born Monkey to Oestrin. S. Zuckerman and G. van Wagenen.—p. 497.
Subcommissural Organ and Mesocelic Recess in Human Brain, Together with Note on Reissner's Fiber. M. F. L. Keene and E. E. Hewer.—p. 501.
Peroneus Tertius Muscle in Chacma Baboon (Papio Porcarius). L. H. Wells.—p. 508.
Unusual Thyroid Gland in Race of Lizards (Egernia Kingii) from Eclipse Island, Western Australia. G. Bourne.—p. 515.
Coronary Blood Supply in Rhesus Monkey. D. I. Abramson and H. J. Eisenberg.—p. 520.

Journal of Tropical Medicine and Hygiene, London

38: 185-196 (Aug. 1) 1935

Short Note on Vibriothrix Aurantica Castellani 1929. M. Girolami.—p. 185.
Ulcer Syndrome in Tropical Africa. A. A. F. Brown.—p. 187.

Medical Journal of Australia, Sydney

2: 101-132 (July 27) 1935

Investigation and Treatment of Vaginal Discharges. H. Jacobs.—p. 101.
Sedatives in Acute Cerebral Trauma. G. Phillips.—p. 108.
Practical Method of Dealing with Asthma and Hay Fever. R. S. Steel.—p. 114.

Practitioner, London

135: 129-248 (Aug.) 1935

The Problems of Tropical Life. L. Rogers.—p. 129.
Care of European Children in the Tropics. H. S. Stannus.—p. 138.
Neurasthenia in the Tropics. M. Culpin.—p. 146.
Diagnosis of Malaria. P. Manson-Bahr.—p. 155.
Tropical Diarrheas. N. H. Fairley.—p. 167.
Favorite Prescriptions: VIII. Pharmacopeia of Hospital for Tropical Diseases. W. E. Cooke.—p. 188.
*Anemia in Infancy and Childhood. Helen M. M. Mackay.—p. 200.
Vomiting in Infancy and Childhood. K. H. Tallerman.—p. 211.
Hydatid Cyst of Lung: Case Report of Spontaneous Rupture and Recovery. W. Lee.—p. 223.
Habitual Constipation, Especially in Old Age. F. P. Weber.—p. 229.
Displacements of Uterus: Some Facts and Fallacies. J. H. Hannan.—p. 233.
Solarium for Heliotherapy. P. M. Mehta.—p. 237.

Anemia in Childhood.—Mackay states that anemia is diagnosed much too often in children of school age and not nearly often enough in babies. It is not common in the former, whereas it is extremely prevalent among babies. To make sure whether or not one is dealing with a case of anemia a hemoglobin estimation is essential, for only a profound anemia can be diagnosed with certainty from a child's appearance. A child who lives

in a basement and goes outdoors little and who is overtired or suffering from nausea may look pale and yet have a normal hemoglobin level. Conversely, an anemic child may have rosy cheeks from an outdoor life or may be flushed pink from exercise, from crying or from sitting near a fire. Even slight grades of anemia affect the child's general well being and its resistance to diseases adversely, so that it is of importance to know what is the normal hemoglobin level at different ages, in order to recognize departures from the normal. The normal hemoglobin levels in early life, the types of anemia in relation to age periods and the prophylaxis are discussed.

South African Medical Journal, Cape Town

9: 441-472 (July 13) 1935

*New Pregnancy Test: Demonstrating Presence of Histidine in Urine of Pregnant Women. H. Renton.—p. 441.
Anemia in South African Domesticated Animals. De Kock, Fourie, Quin, Mönnig, Graf and Kellermann.—p. 443.
Agranulocytosis: Report of Three Cases. M. M. Suzman.—p. 449.
Pneumocephalus. F. D. du T. van Zyl.—p. 455.
Leprosy: Some Aspects of Modern Research. H. v. R. Mostert.—p. 459.
Administration of Hospitals Under the East India Company. P. J. Venter.—p. 464.
Height, Weight, Age Standards as Index of Nutrition of Children: Preliminary Report. I. Freed.—p. 467.
The ACH Index as Applied to South African Boys. C. L. Leipoldt.—p. 471.

9: 473-516 (July 27) 1935

Harris's Technic in Prostatectomy. W. H. Lloyd-Wronsley.—p. 475.
Preoperative Period in Prostatic Obstruction. H. J. Besselaar.—p. 479.
Neoplasms in Domestic Animals. C. Jackson.—p. 481.
Operative Treatment of Benign Prostatic Enlargements. V. Vermooten—p. 485.
Benign Prostatic Hypertrophy. J. Z. H. Rousseau.—p. 488.

New Pregnancy Test, Demonstrating Histidine in Urine.—The test that Renton describes depends on the presence of histidine in the urine of pregnant women and is carried out by the technic recently introduced by Kapeller-Adler. This test may readily be performed by any general practitioner. It is not claimed to be as accurate as the Aschheim-Zondek or Friedman tests, but it has the advantage that a result is obtained in about twenty minutes. If the test is used in conjunction with clinical observations, it is of the greatest assistance in the diagnosis of doubtful cases of early pregnancy. Five cubic centimeters of filtered urine is placed in a test tube, and bromine reagent (1 cc. of pure bromine, 100 cc. of glacial acetic acid and 300 cc. of distilled water) is added by means of a pipet until the mixture becomes light yellow. Usually from about 2 to 5 cc. of the reagent is necessary. This is the most intricate part of the test, as it is necessary to have a minute excess of bromine in the urine before proceeding with the next step. The urine "consumes" the bromine, and the excess of bromine is tested for with the iodine starch paper. The best way to do this is to cut a series of small squares of the white paper and place them on a piece of glass. By means of a glass rod, a drop of the mixture is placed on a piece of the paper. Free bromine gives a violet color. If there is too much bromine, the color will be dark violet. The object is to obtain a pale violet reaction, indicating minute excess of bromine. If the color is found to be too dark, a few more drops of urine are added until the correct color is obtained. It is necessary that the color reaction should remain stable for ten minutes. When this color reaction has been settled, i. e., after a lapse of ten minutes, 3 cc. of alkali reagent (10 Gm. of ammonium carbonate, 90 cc. of distilled water and 200 cc. of pure liquid ammonia) is next added and the mixture shaken and then placed in a steaming water bath for three minutes; if the test is positive for histidine and pregnancy, a mauve deepening to reddish purple, depending on the amount of histidine present, will result. This usually becomes more marked on standing for a few minutes. Best results are obtained by using a twenty-four hour specimen of urine, but a morning specimen of good concentration may be used. The author has checked the results of 100 tests by clinical observations or subsequent history. Most of the urines were examined in early pregnancy. One case was positive at three weeks. The best reactions seemed to be obtained at about two to three months. At or near term the intensity of the reaction generally did not appear to be as strong as in earlier cases.

Quart. Bull., Health Org., League of Nations, Geneva

4: 323-496 (June) 1935

Nutrition and Public Health. E. Burnett and W. R. Aykroyd.—p. 323.
*Tuberculin Standardization and Tuberculin Tests. T. Madsen and J. Holm.—p. 475.
*Latest Results of Typhoid Serology: Their Bearing on Production and Testing of Typhoid Vaccines and Therapeutic Serums as Well as on Typhoid Diagnosis. F. Kauffmann.—p. 482.

Tuberculin Standardization and Tuberculin Tests.—Madsen and Holm point out that considerable divergences appear in the results of certain of the series of tuberculin tests carried out recently, but, as there was no uniformity in the tuberculin used or the type of test employed, it is hardly possible to compare the results, and valuable material is thus lost for the study of tuberculosis epidemiology. The adoption of the standard tuberculin and of a standardized test would remedy this. The authors state that the sensitivity of the Pirquet and Moro tests corresponds to a Mantoux test performed with 0.01 mg. of standard tuberculin. To determine all the tuberculin positives, the negative reactors must be retested with an intracutaneous injection of 0.1 mg. and eventually with 1 mg. of standard tuberculin. Only a complete intracutaneous test ending with a dose of 1 mg. can be considered a standard method for mass investigations.

Serologic Results in Typhoid.—Kauffmann states that the discovery of the new typhoid Vi antigen (virulence antigen) and the detection of the new serologic V-W change of form has introduced vitally important improvements in the experimental basis on which the production and testing of typhoid vaccines and therapeutic serums rests. At the same time, this new knowledge has completely eliminated the difficulties and irregularities formerly encountered in serologic typhoid diagnosis. Therefore, great progress has been made both in the diagnostic and in the therapeutic field. The author gives a general survey of the field. The experience that he has gained so far affords a reliable basis for the following proposals concerning an internationally uniform Widal test: 1. All investigators should use the same strains, which should be supplied from one single center and distributed fresh once a year. 2. The strains should in all cases be reseeded on the same medium, and the emulsions prepared and preserved according to the same method. 3. The Salmonella tests should be performed separately with O and H antigens. 4. Killed emulsions should be used for O and H agglutinations, since these emulsions are in every case specific and easy to read, remain stable for a long time and are safe and cheap. 5. Formaldehyde broth cultures should be used for purposes of H agglutination, alcohol emulsions for O agglutination and living or formol-killed bacilli of the V form for possible Vi agglutination. 6. Specified dilutions of the serum, specified temperatures of incubation, specified periods of incubation and a specified technic of reading and appraisal of results should be used.

Journal of Oriental Medicine, Dairen, South Manchuria

22: 81-102 (June) 1935

Lower Jaw of Chinese. K. Miyashita.—p. 81.
Cholera and Cholera-like Vibrio: Parts VI, VII and VIII. Variability of Cholera Vibrio. K. Manako.—p. 85.
Investigations on Amebic Dysentery: VII. Simple Method for Determination of Degenerated Trophozoite and Cysts of Endamoeba Histolytica in Feces. I. Sumi and K. Inoue.—p. 88.
Study of Anaerobic Bacteria: Part I. Comparative Study of Growth of Anaerobic Bacilli on Aerobic Mediums. H. Inoue.—p. 89.
Id.: Part II. Simple Method of Cultivating on Slant Agar Mediums. H. Inoue.—p. 90.
Pelvic Arteries of Chinese. K. Miyashita.—p. 91.
Place of Origin of Large Branches of Abdominal Aorta in Chinese. K. Miyashita.—p. 92.
Experimental and Clinical Study of Urinary Nitrite Reaction. K. Okada.—p. 94.
Biologic Studies of Acid-Fast Bacteria: Part II. Isolation of and Some Biologic Natures of Saprophytic Acid-Fast Bacteria. K. Urabe.—p. 96.
Sweating with Heat Stroke. K. W. Kuo, K. Takahara, J. Adachi and K. Saito.—p. 98.
Observations on Discharge of Sweat Drops from Sweat Pores in Man. K. Saito.—p. 100.
Effect of Application of Cold on Metabolism at High Surrounding Temperatures. K. Ogata.—p. 101.
The Effective Sweating. S. Ito and T. Yabuki.—p. 102.

Presse Médicale, Paris

43: 1169-1192 (July 24) 1935

Cancer of Larynx in Aged. G. Portmann, Mougneau and Barraud. —p. 1169.
*Treatment of Tuberculous Adenitis. P. Moure, Baude and C. Rouault. —p. 1172.
Thrombophlebitis of Inferior Vena Cava and Portal Vein. R. Lutembacher.—p. 1175.
Normal and Pathologic Gastric Villosity. F. Moutier.—p. 1178.
Clinical and Roentgenologic Forms of Aerial Cyst of Lung. P. Pruvost, M. Leblanc, Delort and Coletsos.—p. 1182.
Action or Reaction of Parathyroids in Diffuse Cancerous Osteitis. E. Bernard, J. Boyer, J. Porge and Mlle. Gauthier-Villars.—p. 1186.
Diffuse Subacute Glomerulonephritis. H. Chabanier, C. Lobo-Onell and E. Lelu.—p. 1189.

Treatment of Tuberculous Adenitis.—Moure and his collaborators discuss the use of an etherized solution of formolized chlorophyll in tuberculous adenitis. This solution has the advantage of being penetrating and sclerosing. The adenitides treated were for the most part cervical and of three types: chronic, ganglionic masses formed from agglomerations of ganglions and fistulized adenitides. The technic of injection was simple. In the case of cervical polyadenopathy it is necessary to choose a gland at the lower portion of the superficial subclavicular triangle, to fix it between the thumb and forefinger and to push the needle directly into the center, avoiding the superficial veins. The injection is then made slowly. The pain is relatively slight, owing to the incorporation of an anesthetic in the fluid. The local reaction and the fever of about 39 C. (102.2 F.), especially the first, are not to be considered a complication. The amount injected is from 2 to 10 cc. The number and frequency of the injections vary with the case. Some cures have been obtained in two months with four injections; others in six months with ten or twelve. The authors have treated 112 patients in this way. Eleven were lost sight of, forty-five recovered and fifty-six are still receiving treatment.

Schweizerische medizinische Wochenschrift, Basel

65: 757-804 (Aug. 24) 1935. Partial Index

*Infection Experiments with Isolated Oxychromatic Inclusion Bodies of Herpes. Gertrud Baumgartner.—p. 759.
Observations on Nonneoplastic Pancreatic Disturbances. A. Bener.—p. 760.
Case of Acromegaly with Diabetes Mellitus; Also Contribution to Physiology of Anterior Lobe of Hypophysis. E. Goldschmidt.—p. 766.
*"Extrarenal" Azotemia in Circulatory Insufficiency. H. Grieshaber.—p. 768.
Pulmonary Gangrene with Bronchitis Dissecans. Marta Herzog.—p. 770.
Bronchiectasis in Situs Viscerum Inversus. M. Kargagener and A. Horlacher.—p. 782.
Simultaneous Appearance of Scalma in Horses and of Disturbances Resembling Glandular Fever in Human Beings. F. Koepplin.—p. 787.

Experiments with Inclusion Bodies of Herpes.—Baumgartner reports her studies on the oxychromatic inclusion bodies of herpes. She isolated, washed and inoculated them. The material she investigated consisted of the epithelial cells of the cornea of rabbits with vaccination keratitis. She found three types of formations that are not detectable in the normal cornea: 1. After teasing and smoothing the tissue débris by means of microneedles, she discovered occasionally free cells which enclosed a luminescent body. 2. In enlarged, partly degenerated cells she observed roundish and slightly longish formations that were somewhat larger and less luminescent than the first ones. 3. In the surroundings of the tissue fragments there frequently were a number of roundish and longish formations that had great luminescence. All three types give, under greatest magnification, the impression of globes with many pits. The author is convinced that the bodies mentioned under 1 and 2 are herpes bodies and thinks it probable that those of the third group are too. However, in the experiments with the herpes bodies she used only those that had been extracted from the cells. After the bodies had been isolated and washed, a body was blown by means of a pipet into a scarification on the cornea of a rabbit. In other animals the wash fluid was introduced in the same manner. The author states that she obtained two positive results with herpes bodies and two positive and seven negative results with the bodies and wash fluid combined, but the wash fluid alone always gave negative results. She admits that the number of her experiments was too small to permit definite conclusions, but she points out that with herpes bodies the results are less often positive than in fowl pox. In citing other investigators of the problem of inclusion bodies, she points out that some suggested the subdural mode of infection. She thinks that comparative studies with several methods of vaccination might throw more light on the problem.

"Extrarenal" Azotemia in Circulatory Insufficiency.—Grieshaber points out that, whereas the pathogenesis of renal uremia is fairly clear, the extrarenal factors that may cause azotemia are not so well understood. Some authors believe that azotemia may result from sodium chloride deficiency, while others assume more general causes. The latter group admits a sodium chloride deficiency, but, instead of considering the salt deficiency the cause, they maintain that it is an accompanying symptom. The author reports a case history that corroborates the latter view. A decompensated aortic insufficiency, which developed on the basis of an aneurysm resulting from incomplete rupture of the aorta, led with increasing circulatory weakness and cardiac oliguria to an azotemic condition. The author stresses that the azotemia preceded the hypochloremia, that the increase in the urea content was accompanied by a retention of the aromatic disintegration products of protein, and that there was a discrepancy as regards time and volume between the hypochloremia and the hypochloruria. He shows that in the reported case the hypochloremia cannot have been the cause of either the azotemia or the hypochloruria. Moreover, the cause of the hypochloremia is likewise unknown, for it cannot be explained by external causes, such as vomiting or diarrhea. However, it is possible that the sodium chloride in the edema fluid, that is, in the tissues, could not be mobilized because of the continuous circulatory impairment of the prerenal function, while as the result of digitalization a flooding out took place by way of the kidneys. This sodium chloride retention in the tissues, that is, at the site where the proteinic metabolic products develop, is, in addition to the aforementioned time factors, a further proof of the fact that the azotemia resulting from circulatory insufficiency is not caused by sodium chloride deficiency.

Pediatria, Naples

43: 993-1104 (Sept. 1) 1935

*Glycemic Changes in Epidemic Parotitis. P. Buonocore.—p. 993.
Sympathetic Nervous System in Exudative Diathesis Through Study of Capillaries. S. Quadri.—p. 1004.
Reaction of Feces in Children: Determining Causes of Fecal *pH*. R. Pachioli and V. Mengoli.—p. 1025.
Hematologic Research in Vivo on Bone Marrow of Early Infancy. F. Tecilazic.—p. 1046.
McClure-Aldrich Test in Intoxication. E. Tatafiore.—p. 1053.

Glycemic Changes in Epidemic Parotitis.—Buonocore made dextrose tolerance tests at intervals on ten children who had epidemic parotitis. The patients were given from 20 to 50 Gm. of dextrose on a fasting stomach. No less than 2.5 Gm. of dextrose per kilogram of body weight was given. The glycemic curve was read every half hour. All patients showed marked glycemic changes. During the regressive stage of the parotitis (from the fourth to the sixth day) the curve demonstrated intense hyperglycemia of long duration. The author suggests that the disturbance in glycemic metabolism was due to a concomitant pancreatic dysfunction.

Archivos de Medicina, Cirugia y Espec., Madrid

38: 545-576 (Aug. 30) 1935

*Physiologic Importance of Amount of Circulating Blood: Its Study in Cardiovascular Diseases. J. del Cañizo y Suárez.—p. 545.
Syphilitic and Arsenical Sensorimotor Polyneuritis: Differential Diagnosis. W. López Albo.—p. 551.
Creatinuria in Muscular Dystrophy and Cortical Hormone. A. Pascual and J. A. Collazo.—p. 555.
Malta Fever in Our Neurologic Experience. P. Ortiz Ramos and J. Ortiz de Villajos.—p. 558.
*Congo Red in Treatment of Hemoptysis. A. Hernández Díaz.—p. 563.

Studies on Circulating Blood.—Cañizo y Suárez made studies on the amount of blood in circulation in normal conditions and in cardiovascular diseases. He concludes that the organs that act as physiologic reservoirs of blood are the spleen, liver, lungs, venous system and subpapillary plexus of the skin, as has been proved by other authors. The amount of blood in circulation under normal conditions is about 85 cc. per kilogram of body weight, a value relative to the body weight and the venous pressure. The amount of blood in circulation may vary, because of physiologic or pharmacologic influences. It

increases by muscular exercise, rising of the external temperature and respiration of carbon dioxide and diminishes during sleep or by the respiration of oxygen. The amount of circulating blood ranges between 55 and 75 cc. per kilogram of body weight in persons presenting compensated valvular lesions. The diminution represents a new factor for the compensation of the cardiac lesions. The amount of circulating blood regularly increases in compensated red hypertension (plethora), diminishes in compensated white hypertension (spasm), greatly diminishes in acute circulatory insufficiency (vasomotor collapse) and greatly increases in chronic circulatory insufficiency, in which figures of about 120 cc. per kilogram of body weight, and even more, may be observed. Venous pressure in cases of chronic circulatory insufficiency is extremely high. Wollheim's "minus" decompensation and vasomotor collapse should be considered two stages of one and the same process and not two different forms of circulatory insufficiency.

Congo Red in Treatment of Hemoptysis.—Hernández Díaz states that the factors of hemorrhage and spontaneous hemoptysis depend on the reticulo-endothelial system, the stimulation of which, especially by congo red, results in the control of hemorrhages. He reports satisfactory results with intravenous injections of a 1 per cent solution of congo red in distilled water in the amount of 10 cc. per injection. Smaller injections are insufficient. The technic is the same as that used for any intravenous injection. The interval between the injections is twenty-four hours. As a rule the hemorrhage stops after the first or second injection, except in rare cases in which four or five injections are necessary to control it. The treatment is indicated in any type of hemorrhage, but the best results are obtained in those of moderate intensity. The injections of congo red are generally well tolerated. The febrile reaction following the injection shown by a small group of patients seemed to be due to a slight precipitation of the solute in the solvent, owing to the fact that Ringer solution was used instead of distilled water in the preparation of the solution. The injection is a little difficult because of the color of the solution to be injected. Congo red is not a caustic to the cellular tissues, but when it exudes from the vein a red spot appears at the point of injection that may last for several days. In the author's group of sixty-four patients, fifty-eight were suffering from tuberculous and nontuberculous hemoptysis. Of these, the treatment failed in two cases of ulcerous tuberculosis with cavitation, gave mediocre results in seven and succeeded in forty-nine (control of the hemorrhage after one, two or three injections without recurrences). The remaining six cases include three of hematemesis in gastric ulcer, one of melena in cecocolic intestinal tuberculosis, one of hematuria due to renal lithiasis, and one of hemorrhage due to rectal epithelioma. The treatment succeeded in all cases except in that of rectal epithelioma. The phenomena observed in the blood after the injection are monocytosis, increase of the fibrinogen and of the platelets, and shortening of the time of coagulation.

Beiträge zur Klinik der Tuberkulose, Berlin

86: 343-398 (July 27) 1935. Partial Index

Gold Therapy of Tuberculosis. J. Zinkernagel.—p. 343.
*Pathogenesis of Bronchiectasis: Bronchiectases and Changes in Accessory Nasal Cavities. M. Kartagener and K. Ulrich.—p. 349.
*Experiments on Prophylactic Vaccination Against Tuberculosis with Different Strains of the Tubercle Bacillus and with Staphylococci. J. Weissfeiler and E. N. Morosowa.—p. 358.
*Demonstration of Tubercle Bacilli in Adults: Culture from Gastric and Duodenal Contents. K. Menzel and J. Schramek.—p. 371.
Dry Picture of Tuberculin. P. Kallós.—p. 378.

Pathogenesis of Bronchiectasis.—Kartagener and Ulrich state that the rhinologic examination of seventy patients with bronchiectasis disclosed in thirty-nine, or 55.7 per cent, a chronic maxillary sinusitis. They think that this frequent concurrence of bronchiectasis and sinusitis is not entirely accidental. Moreover, the cranial roentgenograms of eighty-six patients with bronchiectasis disclosed that a relatively large proportion of these patients had small frontal sinuses and that in some the frontal sinus was entirely absent. Comparative examinations in 100 normal persons made this quite evident. The comparative numbers were 35 compared to 18 per cent, and 20 compared to 3 per cent, respectively. The authors consider these observations a demonstration of developmental inhibitions in the region of the accessory nasal sinuses in patients with bronchiectasis. This developmental inhibition is of a constitutional rather than an exogenic nature, and the authors conclude that the concurrence of bronchiectasis and sinusitis indicates a coordinated developmental inhibition or a deformity in two different sites of the respiratory tract.

Prophylactic Vaccination Against Tuberculosis.—Weissfeiler and Morosowa made their studies on guinea-pigs. They admit that other investigators considered guinea-pigs unsuitable for such studies, but they are of the opinion that, if all precautions are taken to avoid mistakes, it is possible to obtain valuable results with guinea-pigs. They describe a method of immunization for guinea-pigs which, they think, will produce objective and readily comparable results. They found the BCG strain especially effective in producing immunity in guinea-pigs and think that the efficacy of other immunization methods should be evaluated by comparison with the BCG experiment. The pigment forming tubercle bacillus strain of Weissfeiler and the R and S variants of this strain likewise produced a noticeable immunity; this indicates that the mutation that resulted in the development of these variants did not abolish the immunizing action. The R variant proved more effective than the S variant and the mixture of the two did not produce a greater immunity. The non-acid fast forms of the tubercle bacillus increased the resistance only slightly. The immunizing capacity has been largely lost in the changes which these non-acid fast forms underwent in their mutation from tubercle bacilli. The authors found also that by treating guinea-pigs with staphylococci it was possible to effect an increase in the nonspecific tuberculous infection. They think that heteroallergic changes explain this increase in the nonspecific resistance.

Demonstration of Tubercle Bacilli.—Menzel and Schramek think that the search for tubercle bacilli in adults should include bacterioscopy and culture of specimens of sputum; if there is no spontaneous expectoration, a laryngeal smear should be taken for microscopic examination and culture. In addition to this they recommend the fractional withdrawal of the secretion of the fasting stomach, of the duodenal contents and of the bile. Cultures of the material obtained in this manner should be made on the Petragnani medium. The authors emphasize that for the examination of the gastric and duodenal contents the culture method is better than bacterioscopy and is also simpler, more reliable and less time consuming than the animal experiment. Tests on 120 adults with pulmonary tuberculosis were negative in eighty-four cases in which the sputum or the laryngeal smear had been subjected to bacterioscopy and to cultural examination. In seventeen of these eighty-four patients, however, culture of the gastric and duodenal contents was positive. In view of the fact that the gastric and duodenal cultures had been made only once in each patient and that the examinations of the sputum or the laryngeal smears had been made according to four different methods, it may be concluded that the gastric and duodenal cultures are highly sensitive. The examination of the gastric contents alone is insufficient, because the duodenal contents seem to be more often positive than the gastric secretion. The bile was found positive in only a few cases. The authors reject the hypothesis that considers the presence of tubercle bacilli in the bile indicative of a continuous bacillemia. They maintain that culture of the gastric and duodenal contents is of practical significance, because it succeeds in cases in which all other methods fail.

Dermatologische Zeitschrift, Berlin

72: 1-56 (Aug.) 1935. Partial Index

Dermatomycoses Caused by Rare Strains of Parasites. E. Weisz.—p. 1.
*Are There Specific Antibodies in the Urine of Syphilitic Patients? T. Preininger.—p. 10.
*Primary Syphilitic Lesion in Urethra Duplex. W. Koch.—p. 15.

Are There Specific Antibodies in Urine of Syphilitic Patients?—Preininger reviews his studies on 211 specimens of urine. Of these, 109 were from patients with syphilis and 102 from patients who were free from it. He found neither the precipitation methods nor the Wassermann test suited for the detection of syphilitic antibodies and that the outcome of these tests does not even permit the assumption of the presence of

antibodies. He concludes that the urine of syphilitic patients either does not contain syphilitic antibodies or that the present methods are not capable of detecting them.

Primary Syphilitic Lesion in Double Urethra.—Koch points out that the localization of the primary syphilitic lesion in the urethra is comparatively rare. He recently observed a case in which the primary lesion was localized in the orifice of a double urethra. He describes the history of this patient, a man, aged 69, and states that the primary lesion and the infiltration of the double urethra yielded to a combination therapy with bismuth compounds and arsphenamine. Following the introduction of a contrast medium, roentgenoscopy revealed a double urethra, but apparently there was no communication between the double and the normal urethras or the bladder. The anamnesis revealed that up to the age of 15 micturition took place through both urethras, but after that the duplicate urethra became gradually obstructed, the obstruction being complete at the age of 20. According to the author the literature reports sixty cases of double urethras, but he thinks that this is the first report of a primary syphilitic lesion in a double urethra.

Klinische Wochenschrift, Berlin

14: 1201-1232 (Aug. 24) 1935. Partial Index

Serologic Studies in Tuberculosis. F. Müller and O. Schedtler.—p. 1206.
*Relations Between Alternation of Cardiac Action and Changes in Coronary Circulation. V. Chini.—p. 1208.
Influence of Epinephrine on Resorption from Subcutaneous Tissue. J. Falck and E. Lange.—p. 1209.
Treatment of Paroxysmal Tachycardia. F. Nagel.—p. 1211.
*Castor Oil as Means of Intensification of Serologic Reactions, Particularly of Complement Fixation in Gonorrhea. R. Brandt.—p. 1212.
*Microscopic Demonstration of Vitamin A in Animal Tissue. F. R. von Querner.—p. 1213.

Alternation of Cardiac Action and Changes in Coronary Circulation.—Chini reports observations on three patients in whom the electrocardiogram was characterized by an atypical course of the first phase of the ventricular complex with alternating elevation of the R and S deflections and with alternating course of the ST wave, especially in the first and third leads. A few days after the electrocardiogram had been made, there appeared symptoms of cardiac infarct followed by death in the three cases. The fact that the ST wave showed an alternating course before the appearance of the clinical symptoms of cardiac infarct and that the rapid development of a new apical infarct following the thrombosis of the distal portion of the anterior descending coronary artery could be proved by the anatomic aspects indicates that there had been previously an insufficient blood supply in the region in which the infarct developed. This was indicated by the alternating coronary changes in the electrocardiogram. The author believes that a temporary disturbance in the apical region, which as such could produce only a temporary alternating asystole, was the beginning of the thrombosis and infarct formation. In one instance there also was pulsus alternans. The author thinks that the alternating course of the ST wave in human subjects can be compared with the cardiac alternation in amphibians, if this alternating course is the result of a partial asystole of a ventricular region.

Castor Oil as Means of Intensification of Serologic Reactions.—Brandt says that other investigators suggested the intensification of serologic reactions, particularly the Müller-Oppenheim reaction for gonorrhea, by means of an addition of olive oil. The author concedes that this was a technical advance but considers it a disadvantage that olive oil is not readily soluble in alcohol. To overcome this shortcoming he used castor oil instead of olive oil and found that the castor oil was better in that not only a considerable saving of specific antigen was possible but also the Müller-Oppenheim gonorrhea reaction increased in range.

Microscopic Demonstration of Vitamin A in Animal Tissue.—In studies with the fluorescence microscope von Querner observed that in the paraplasmatic fat inclusions of the hepatic parenchyma, of the adrenals and of the hypophysis, as well as in the retinal rods and cones, there is a substance that is luminous under the fluorescence microscope. The luminous substance is rapidly destroyed under the influence of ultraviolet rays. The author observed also that the fat droplets of some animal products and of various synthetic vitamin A preparations have the same luminescence. According to measurements with the spectral ocular and on the basis of their behavior these substances have a close resemblance; the slight deviations are probably the result of carotene admixtures. In the organs of rats deprived of vitamin A for long periods, the luminous substance is either absent or is present in small quantities. The author concludes that the luminous substance is either identical with vitamin A or represents some form of this vitamin.

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111: 137-272 (Aug. 16) 1935

Modification of Weight of Body and of Organs of White Mice During Pregnancy. R. Brühl and F. Vogel.—p. 137.
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*Studies on Porphyrin Metabolism During Pregnancy. R. Fikentscher.—p. 164.
*Studies on Porphyrin Content of Urine in Pregnancy Toxicoses, Particularly in Hepatic Disturbances. R. Fikentscher.—p. 210.
Genesis of Premature Detachment of Placenta. C. Clauberg.—p. 217.
*Observations on Old Primiparas. M. Vorlíček-Jelínek.—p. 229.
*Superficial Spreading of Cervical Carcinoma to Vagina. H.-E. Eichenberg.—p. 243.

Porphyrin Metabolism During Pregnancy.—Fikentscher reports his own studies on porphyrin metabolism during pregnancy. He discusses the elimination of porphyrin in the urine of healthy pregnant women and compares it with that of nonpregnant women. He found increased values much more often in pregnant than in nonpregnant women, and he noticed that the porphyrin content of the urine is most frequently increased during the first and the last third of the gestation period. He points out that the high incidence of increased elimination of porphyrin during pregnancy harmonizes with the fact that in pregnant women the metabolism is taxed higher than ordinarily. He reports his studies on the porphyrin content of the blood of mother and fetus during normal pregnancy. The blood corpuscles and the serum were examined separately. It was found that the porphyrin content of the erythrocytes of pregnant women does not noticeably differ from that of nonpregnant women. Tests on the serums of pregnant women generally revealed no porphyrin. The author states further that, whereas it has been impossible to demonstrate noticeable quantities of porphyrin in the blood of normal human subjects, spectroscopic analysis of the serums of fetuses and of newly born infants discloses the presence of ether-soluble porphyrin with a spectrum quite similar to that of coproporphyrin. He thinks that this indicates that the porphyrins have a special biologic position and function during embryonal life. He reports his studies on the porphyrin content of the amniotic fluid, which revealed that the values were highest between the fifth and the seventh month of pregnancy. Tests on the urines of newly born infants disclosed the highest porphyrin values during the first few days of life (second to fifth days). After that the porphyrin content decreases rapidly.

Porphyrin Content of Urine During Pregnancy Toxicoses.—In this report Fikentscher describes his studies on the urinary elimination of porphyrin in women in whom the pregnancy produced a disturbance in the metabolic apparatus, particularly the liver. He observed increased elimination in the toxicoses and he found the highest porphyrin values in the urine of patients with the severest impairment of the metabolic apparatus. Variations in the clinical aspects were accompanied by corresponding alterations in the porphyrin content of the urine. The interrelations were especially noticeable in women with emesis and hyperemesis. Careful studies were made on forty-six women with these disorders and it was observed that in the mild cases the porphyrin content of the urine did not differ noticeably from that of healthy pregnant women. In women with hyperemesis, the degree and the time of appearance of the increase in the porphyrin content of the urine coincided with the degree and the duration of the vomiting. In the severest forms of hyperemesis, the porphyrin content of the urine reached extremely high values and the subsidence of the symptoms was accompanied by a decrease in the porphyrin values. The author thinks that the heightened porphyrin content in hyperemesis is primarily, although not entirely, the result of functional disturbances in the liver. He concludes

that the determination of the porphyrin content of the urine has clinical significance in that its results indicate whether the organism can cope with the requirements of pregnancy. Greater increases in the porphyrin content indicate disturbances in the metabolic equilibrium, particularly the hepatic function.

Observations on Old Primiparas.—Vorliček-Jelinek calls attention to the fact that the number of old primiparas is now considerably larger than during the prewar period and thinks that the present economic and social conditions are responsible for this. But, although there are comparatively more old primiparas now, the incidence of dystocia among them has decreased. Whereas formerly the pelvic anomalies necessitated the majority of obstetric operations, it is now the rigidity of the soft parts that is the chief cause of pathologic deliveries in old primiparas. This rigidity is mainly responsible for premature rupture of the bag of waters and for weaker action of the labor pains with resulting longer duration of the delivery. The majority of old primiparas of the present period have a normal pelvis; for this reason, abnormal positions of the fetus are less frequent among them than they were formerly and the deliveries of primiparas are now as a rule less difficult. The author observed also that in old primiparas there is neither a greater frequency of pregnancy complications nor a greater tendency to premature births than in young mothers. There seems to be a relatively larger number of male as well as of multiple births in old primiparas, but there is as yet no satisfactory explanation for these phenomena.

Superficial Spreading of Cervical Carcinoma to Vagina.—Eichenberg shows that the superficial carcinomatous processes of the vagina, which originate in a cervical carcinoma and later appear as recurrences, may cover the entire vagina and may even spread to the vulva. Because of their slow, superficial growth, they are relatively benign. They usually appear red and eroded, and it is difficult to differentiate them from the vaginal changes that frequently develop after irradiation with radium. Since they cannot be felt with the finger, it is necessary to employ a speculum in all gynecologic examinations, particularly after irradiations for carcinoma. In doubtful cases, an exploratory excision should be made. The author points out that the literature brings reports about cases in which the carcinoma spreads to the vagina in the form of a white coating. In three instances a knowledge of these changes led to the discovery of high cervical carcinomas that were neither visible nor palpable. The author thinks that the vaginal radical operation is preferable in cases in which the parametric aspects indicate operability. Radium irradiation of the superficial carcinomatous coatings of the vagina has the disadvantage that the determination of the correct dosage and of the type of application is rather difficult, especially since there is danger of the formation of a fistula. In old women, in whom the spreading of the superficial carcinoma is extremely slow, irradiation is of doubtful value, because it may lead to a more rapid development of the process.

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Gonadotropic Stimulation Therapy. B. Zondek.—p. 1.
*Diet During Pregnancy, with Particular Regard to Albuminuria Prophylaxis. E. Jerlov.—p. 12.
Therapeutic Uses of Hormone Preparations. E. Möller-Christensen.—p. 28.
Uterine Myoma in Young Girls Aged Less Than Twenty Years. S. Clason.—p. 39.
*Duration of Life of Spermatozoa in Human Uterine Tube. C. A. Ohlin.—p. 50.
*Studies on Changes in Uterine Mucosa After Excessive Doses of Estrogenic Hormone. P. N. Damm.—p. 58.
Appearance of Decidual Reactions in Tubal Mucosa in Case of Intra-Uterine Pregnancy. A. Sjövall.—p. 68.
Stereohysterographic Technic. S. Clason.—p. 87.

Diet During Pregnancy.—Jerlov stresses the importance of sufficient amounts of certain metallic elements in the diet of pregnant women, showing that calcium, phosphorus, magnesium and iron are essential for the development of the fetus. He gave especial attention to the iron requirements of the pregnant organisms. In studies on 1,143 pregnant women he observed that the hemoglobin content frequently became greatly reduced, and he considers this indicative of a negative iron balance in the mother, which is brought about because the ordinary diet of the mother does not provide sufficient amounts of iron to meet the growing requirements of the fetus. He advises iron medication for women with low hemoglobin values. Further attention is given to the vitamin requirements of pregnant women, and the approximate daily requirements of vitamins A, B and C are indicated. Vitamin D can be procured by the expectant mother by exposure to the sun or by medication. However, while it is important to add some substances to the diet, there is also a need to restrict others. As the pregnancy advances, it is advisable to reduce the nitrogen and the sodium chloride intake so as to prevent albuminuria. The author describes a diet for pregnant women which he has employed since 1926. The regimen prescribes varied foods, but especially plenty of fruits and vegetables. During the last stage of pregnancy a spoonful of cod liver oil should be taken daily. Milk should be provided in amounts of from 0.5 to 1 liter daily. Eggs should be eaten freely, and lemon and orange juice should be taken. Salted foods should be avoided as much as possible and meat should be taken sparingly. Liver, however, should be eaten frequently because it provides large amounts of vitamin A and of iron. The author advises that women be given a special printed form explaining the importance of the dietetic rules.

Duration of Life of Spermatozoa.—To determine whether the tubal epithelium and especially its mucus-producing factors influence the duration of life of the spermatozoa, Ohlin made experiments in vitro. The duration of life of sperm alone was compared with that of sperm which had been combined with epithelium (ciliated and mucus producing) abraded from fresh normal human tubes. A difference in the duration of life of the sperm under these varying conditions could not be detected. The author concludes from this that the tubal epithelium and its secretion constitute a medium that is indifferent for the vitality and the longevity of the spermatozoa and does not counteract the factors in the female genital tract that exert an unfavorable influence on the spermatozoa. This supports the prevailing opinion of a short duration of the life of the sperm after coitus.

Uterine Mucosa After Excessive Doses of Estrogenic Substance.—Damm discusses the theory according to which glandular cystic hyperplasia is caused by the persistence of the follicle with consequent overproduction of folliculin (estrogenic substance) and underproduction of the corpus luteum hormone. He observed that by the administration of 750,000 mouse units of estrogenic substance to a castrated woman, aged 29, changes could be produced in the formerly atrophic mucosa, which corresponded to those that exist in glandular cystic hyperplasia. This observation gives support to the aforementioned theory of pathogenesis and indicates that it is inadvisable to administer to patients with inactive ovaries extremely large doses of estrogenic substance without the subsequent treatment with corpus luteum hormone.

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Chaulmoogra Oil Treatment of Lupus Erythematodes. S. Lomholt.—p. 793.
*Atropine Treatment of Postencephalitic Parkinsonism. O. J. Nielsen.—p. 806.
Determination of Quinine-Resistant Lipases in Exophthalmic Goiter. C. C. Stochholm-Borresen.—p. 813.

Atropine Treatment of Parkinsonism.—Nielsen reports the results of this treatment in sixteen cases, six of which have been followed for five years. Modifying Romer's method, he usually begins with from three to five drops of 1:1,000 solution of atropine sulphate three times daily, increasing by one drop from one to three times a day or every other day. When single doses of more than 1 mg. have been reached, he gives a fixed dosage of 1 (-2-3) mg. three times a day in pills or in a solution and the rest in drops until the optimum is reached. He finds it advantageous, especially at the start of the treatment, to interrupt the treatment for a half or whole day weekly. The optimal doses have been from 4 to 12 mg. three times daily. He believes that by this procedure the unpleasant effects of atropine are diminished and the optimal dose with full therapeutic effect is possibly smaller, the distance between optimal and toxic doses increased and the danger of atropine intoxication lessened.